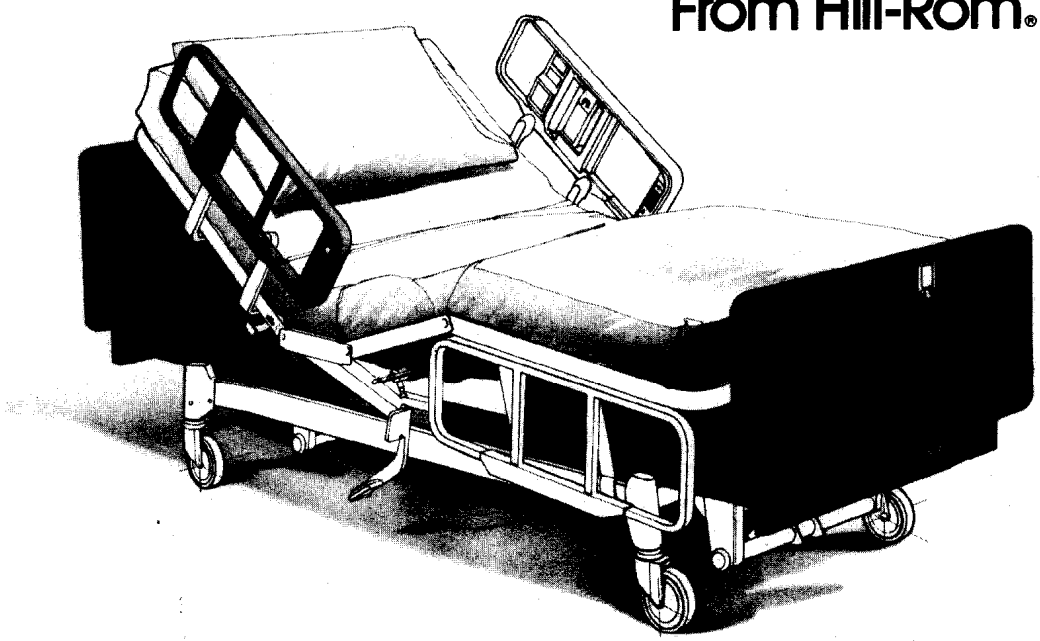
SERVICE MANUAL

CENTURY™ SERIES
From Hill-Rom®



PRODUCT NO. 835, 837

835 BED REVISION SHEET

Original Issue Date: 4-1-84

REVISION LETTER	PAGES AFFECTED	DATE CHANGED
A	835009, 835010, 835025	12-1-86
B	835013, 835025, 835041 thru 835048	7-30-87
C	835004, 835005, 835007, 835009, 835010, 835013, 835014, 835025, 835033 thru 835048	5-15-88
D	83507, 835079 Delete 835080-835082	10-31-88

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835 BED INDEX

DESCRIPTION	PAGE
WARNING: INJURY PREVENTION!	835000
835 BED PARTS DRAWINGS AND PARTS LIST	835001
ARCHITECTURAL BUMPER ASSEMBLY INSTRUCTIONS - 819	835020
AUTOMATIC CONTOUR	835015
BED ENDS	835016
BED EXTENDER ASSEMBLY INSTRUCTIONS - P99-12	835022
BED SPECIFICATIONS	835010
CAPACITOR REPLACEMENT - HEAD AND KNEE MOTORS	835061
CAPACITOR REPLACEMENT - HILOW MOTOR	835060
CHECKING FOR WEAK CAPACITORS	835025
CONNECTORS AND TERMINALS - MOTORS	835048
CONNECTORS AND TERMINALS - P.C. BOARD	835047
CONNECTORS AND TERMINALS - SIDEGUARDS	835048
ENVIRO-CARE COMPATABILITY	835069
EXCHANGE PROGRAM - MOTORS AND PRINTED CIRCUIT BOARDS	835009
EXTRACTION TOOL - TERMINALS AT P.C. BOARD	835048
EXTRACTION TOOL - TERMINALS AT SIDEGUARD CABLE CONNECTION	835051
FRACTURE FRAME ADAPTER SOCKETS - 847, 847A	835021
HEAD AND KNEE DRIVE SCREWS - BENT OR BROKEN	835058
HEAD AND KNEE DRIVE UNITS - REMOVAL	835058
HEAD AND KNEE MOTOR LIMITS	835025
HEAD AND KNEE MOTOR REMOVAL	835059
HILOW CONTROL SWITCH REPLACEMENT - CONTROL BOX COVER	835053
HILOW LIMIT SWITCH REPLACEMENT	835052
HILOW MOTOR REMOVAL	835055
HILOW SCREW ASSEMBLY REMOVAL	835056
HILOW THRUST BEARING REMOVAL	835058
IN WARRANTY EXCHANGE	835010
LOCKING BASE - CAM REPLACEMENT	835067
LOCKING BASE - CASTER ADJUSTMENT	835064
LOCKING BASE - TOP BLOCK REPLACEMENT	835066
LUBRICATION REQUIREMENTS	835015
MANUAL OPERATION OF BED	835026
MOTOR PARTS LIST	835025
MOTORS - GENERAL INFORMATION	835025
ORDERING SERVICE PARTS	835009

835 BED INDEX

DESCRIPTION PAGE

P.C. BOARD - COMPONENT LAYOUT .....835034, 835039 AND 835043
P.C. BOARD - COMPONENT PARTS LIST .....835037, 835042 AND 835046
P.C. BOARD - LOGIC SCHEMATIC .....835036, 835041 AND 835045
P.C. BOARD - REMOVAL 835051
P.C. BOARD - THEORY OF OPERATION 835033
P.C. BOARD - WIRING DIAGRAM FOR SWITCHES, MOTOR AND LIMITS .....835035, 835040 AND 835044
PREVENTIVE MAINTENANCE CHECKLIST 835014
RECOMMENDED SPARE PARTS LIST 835013
ROLLER BUMPER ASSEMBLY INSTRUCTIONS - 818B 835019
SIDEGUARD ASSEMBLY INSTRUCTIONS - 325 - FOOT END 835017
SIDEGUARD ASSEMBLY INSTRUCTIONS - 332 - THREE QUARTER LENGTH 835023
SIDEGUARD ASSEMBLY INSTRUCTIONS - 333 - FULL LENGTH 835024
SIDEGUARD CABLE ASSEMBLIES 835027
SIDEGUARD CONSTRUCTION 835027
SIDEGUARD REMOVAL 835027
SIDEGUARDS - FOOT END - HOW THEY WORK MECHANICALLY 835027
SIDEGUARDS - HARD TO ROTATE UP OR DOWN 835029
SIDEGUARDS - HEAD END - HOW THEY WORK MECHANICALLY 835027
SIDEGUARDS - NOT LOCKING IN UP POSITION 835029
SIDEGUARDS - SWITCH REMOVAL AND REPLACEMENT 835030
TEST EQUIPMENT - CENTRA COMPUTERIZED BED TESTER.....835079
THERMALS 835025
TRAPEZE SUPPORT ASSEMBLY INSTRUCTIONS - 846 835018
TRENDELENBURG - ASSEMBLY REMOVAL 835063
TRENDELENBURG - INDICATORS ADJUSTMENT 835063
TRENDELENBURG - TROUBLESHOOTING 835062
TROUBLESHOOTING PROCEDURE - ELECTRICAL 835069
TROUBLESHOOTING PROCEDURE - FLOWCHART FOR HEAD AND KNEE FUNCTIONS 835071
TROUBLESHOOTING PROCEDURE - FLOWCHART FOR HILOW FUNCTIONS 835074
USING THE PARTS LIST 835009
WATER MATTRESS USAGE ON ELECTRIC BEDS 835015

WARNING: INJURY PREVENTION!

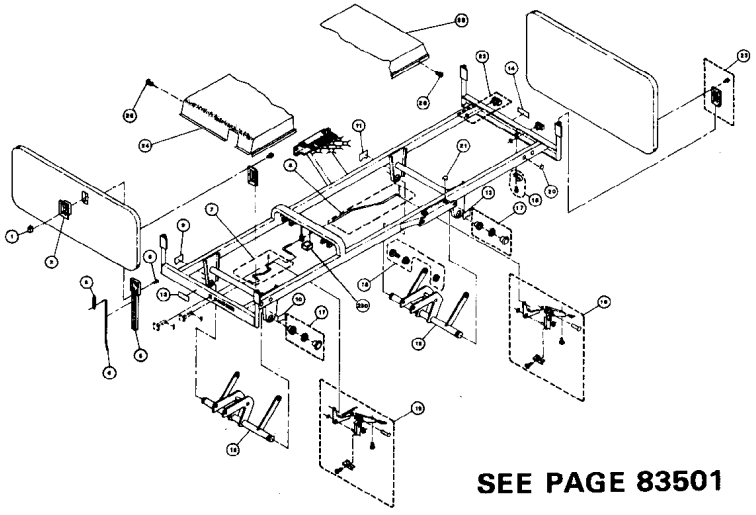
For over fifty years, Hill-Rom has set the standards for quality in patient beds. During this time, our customers have given us valuable input that we have used to compile the chart below. It points out some possible malfunctions on this bed caused by either inadequate preventive maintenance practice or normal wear. These malfunctions could and have lead to patient and staff injury. Also listed in the chart are the corrections involved and some preventive maintenance tips to keep the malfunctions from occuring in the first place. We feel it is our obligation to keep our customers informed of possible safety hazards concerning our products.

MALFUNCTION:	Phantom operation of one or more functions of the bed (bed runs by itself)
CORRECTION:	Either replace the appropriate sideguard switch (See, SIDEGUARDS - SWITCH REMOVAL AND REPLACEMENT") or replace the printed circuit board (See, "P.C. BOARD - REMOVAL").
PREVENTION:	Replace any sideguard switch that shows excessive wear or seems to stick. Replace any printed circuit board that shows corrosion or buildup of excessive foreign residue.
MALFUNCTION:	No brake or steer action after the pedal is actuated.
CORRECTION:	Either replace the top block (See, "LOCKING BASE - TOP BLOCK REPLACEMENT"), adjust the caster (See, "LOCKING BASE - CASTER ADJUSTMENT"), tighten the screw that holds the caster in place or clean the tire tread with terpentine.
PREVENTION:	Test the brake and steer function from time to time, inspect and adjust the casters making sure screws are tight and occasionally clean the tires. Replace any damaged parts.
MALFUNCTION:	Sideguard does not latch properly and falls unexpectedly.
CORRECTION:	Adjust the sideguard (See, "SIDEGUARDS NOT LOCKING IN THE UP POSITION") until it latches properly.
PREVENTION:	Periodically check the sideguard for proper latching. Replace any damaged parts.
MALFUNCTION:	Motor gears strip or motor couplings break causing the motor to overheat or the capacitor to fail thus producing smoke. (Bed is not on fire).
CORRECTION:	Replace any broken parts and adjust the appropriate limits (See sections on head, knee and hilow limits adjustment) to avoid binding.
PREVENTION:	Check the limits against this manual and adjust them accordingly on a periodic basis. Replace any defective parts.

MALFUNCTION:	Bed lowers by itself from some elevated position without apparent reason.
CORRECTION:	Replace any worn drive screw or other component that may have caused the failure. (See head and knee drive sections and also the hilow drive screw section.)
PREVENTION:	Clean and lubricate the drive screws on a periodic basis. Visually verify the structural integrity of the bed. Look for worn or damaged parts relating to the individual drives. Replace any defective parts.
CAUTION:	Shock blocks should never be used on this bed.

If a preventive maintenance program can be implemented to consistently check all beds every six months, many of the problems causing injuries and bed down time can be greatly reduced. Preventive maintenance takes a surprisingly short amount of time and should be a part of every hospital's normal operating procedures.

835/837 BED PARTS LIST
HILL-ROM COMPANY, INC.
BATESVILLE, IN 47006



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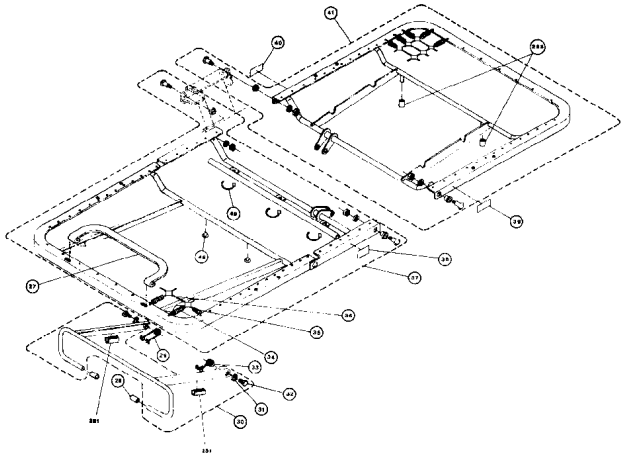

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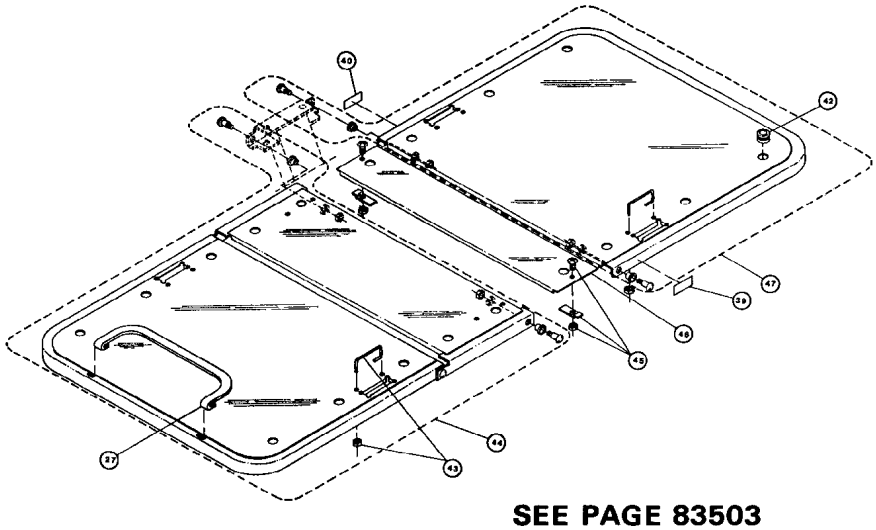

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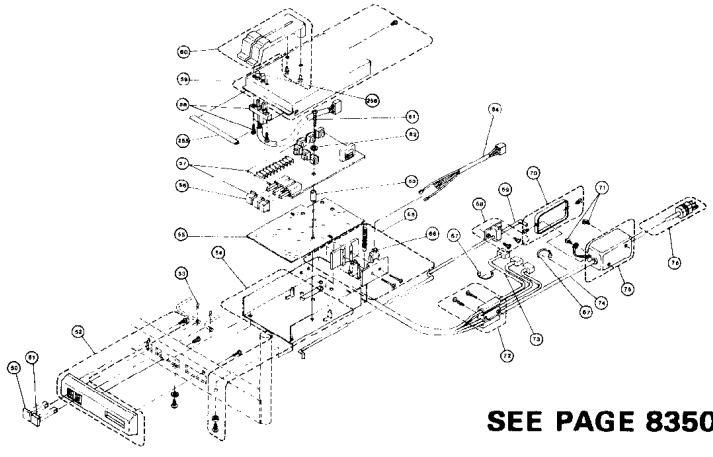

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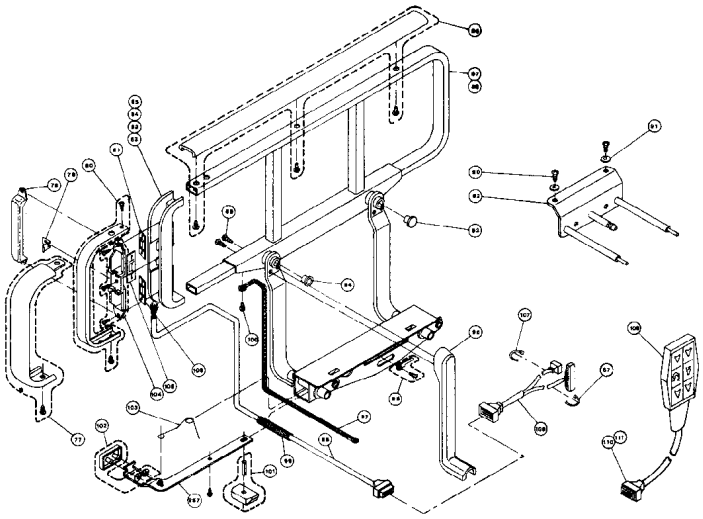

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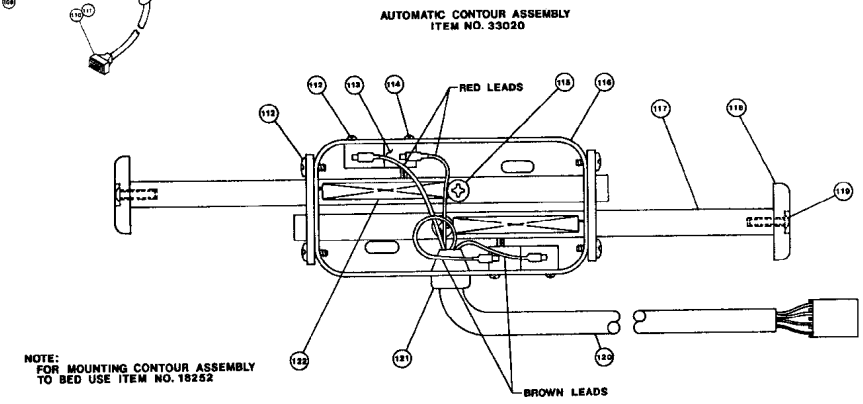

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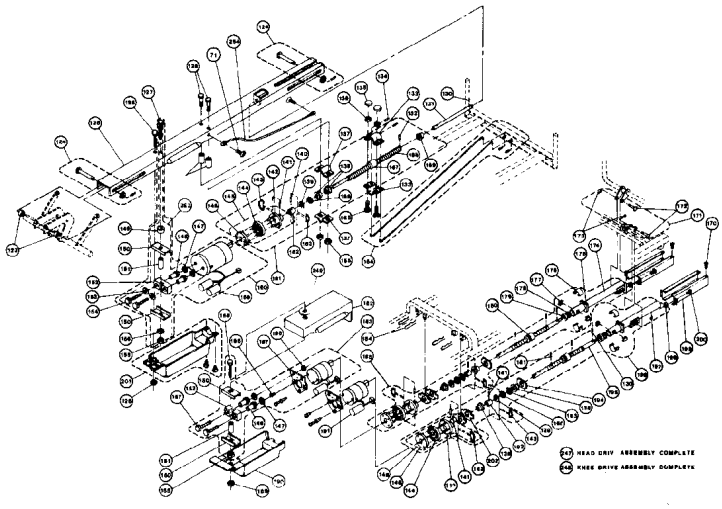

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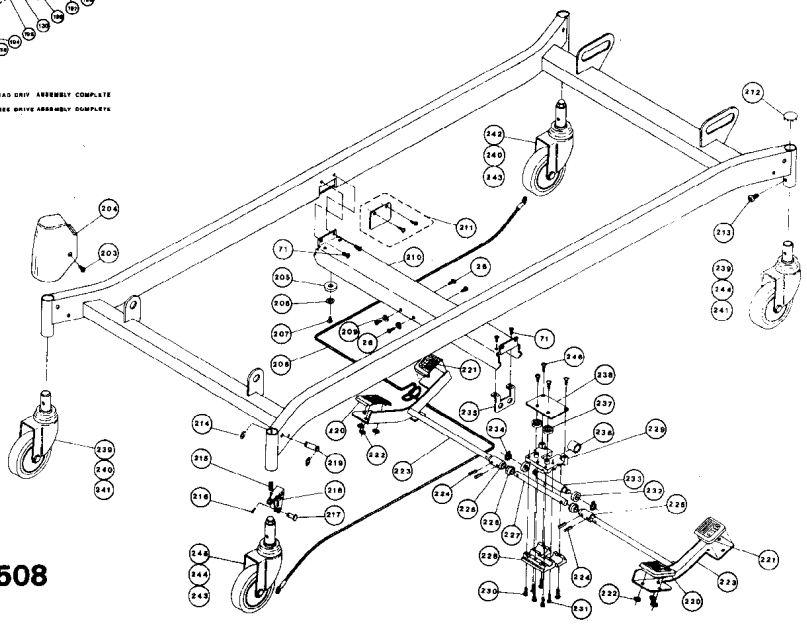

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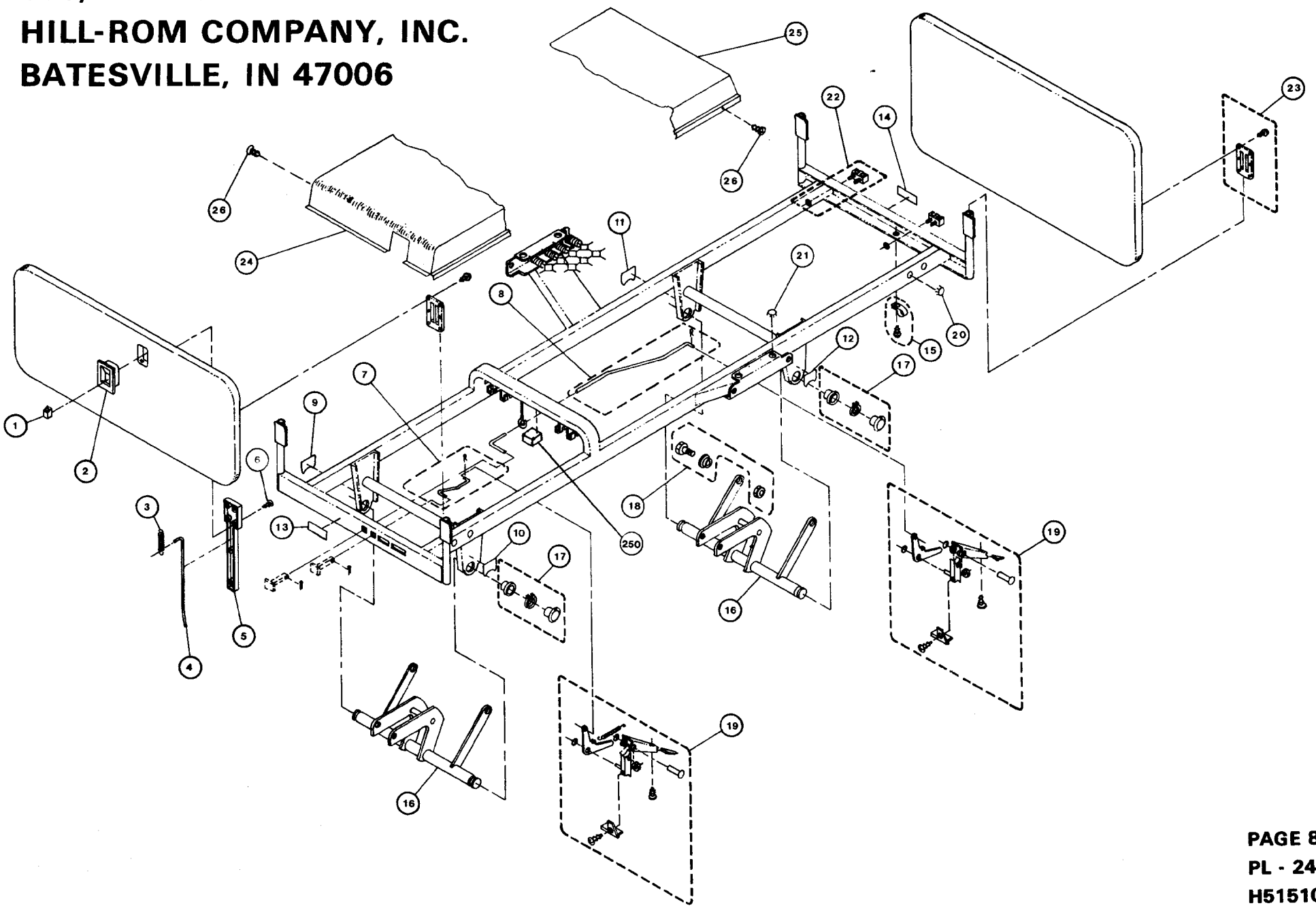

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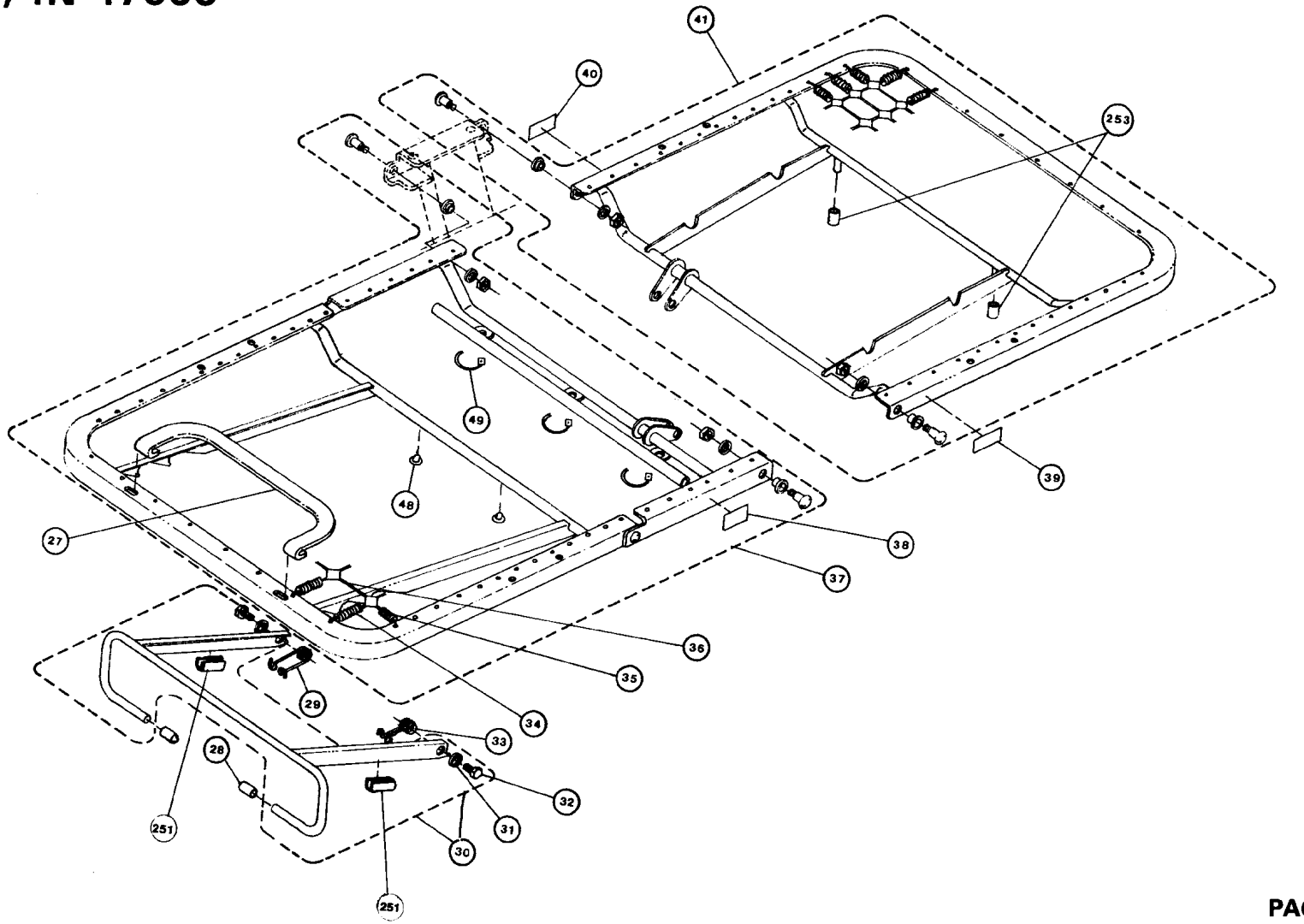

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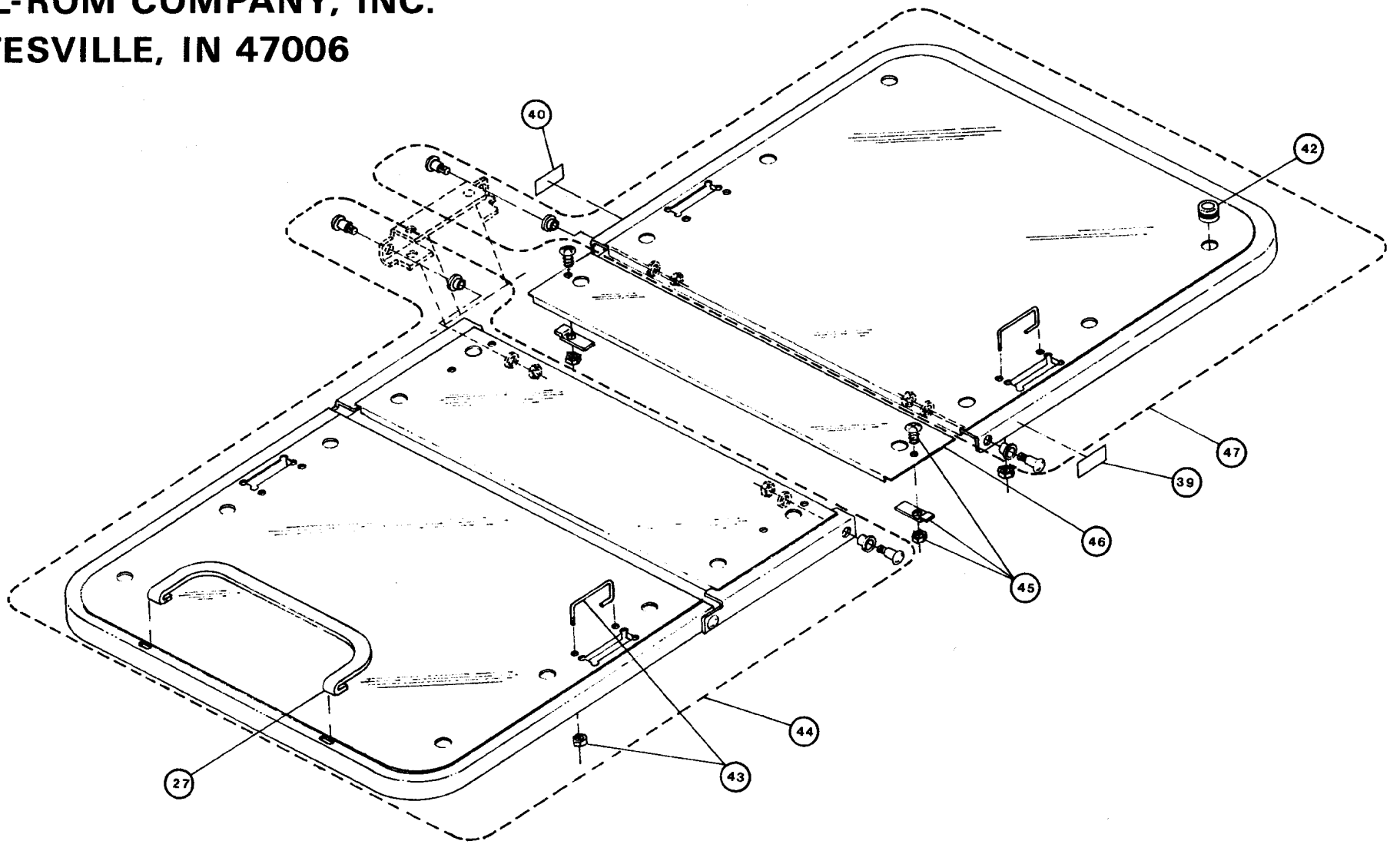

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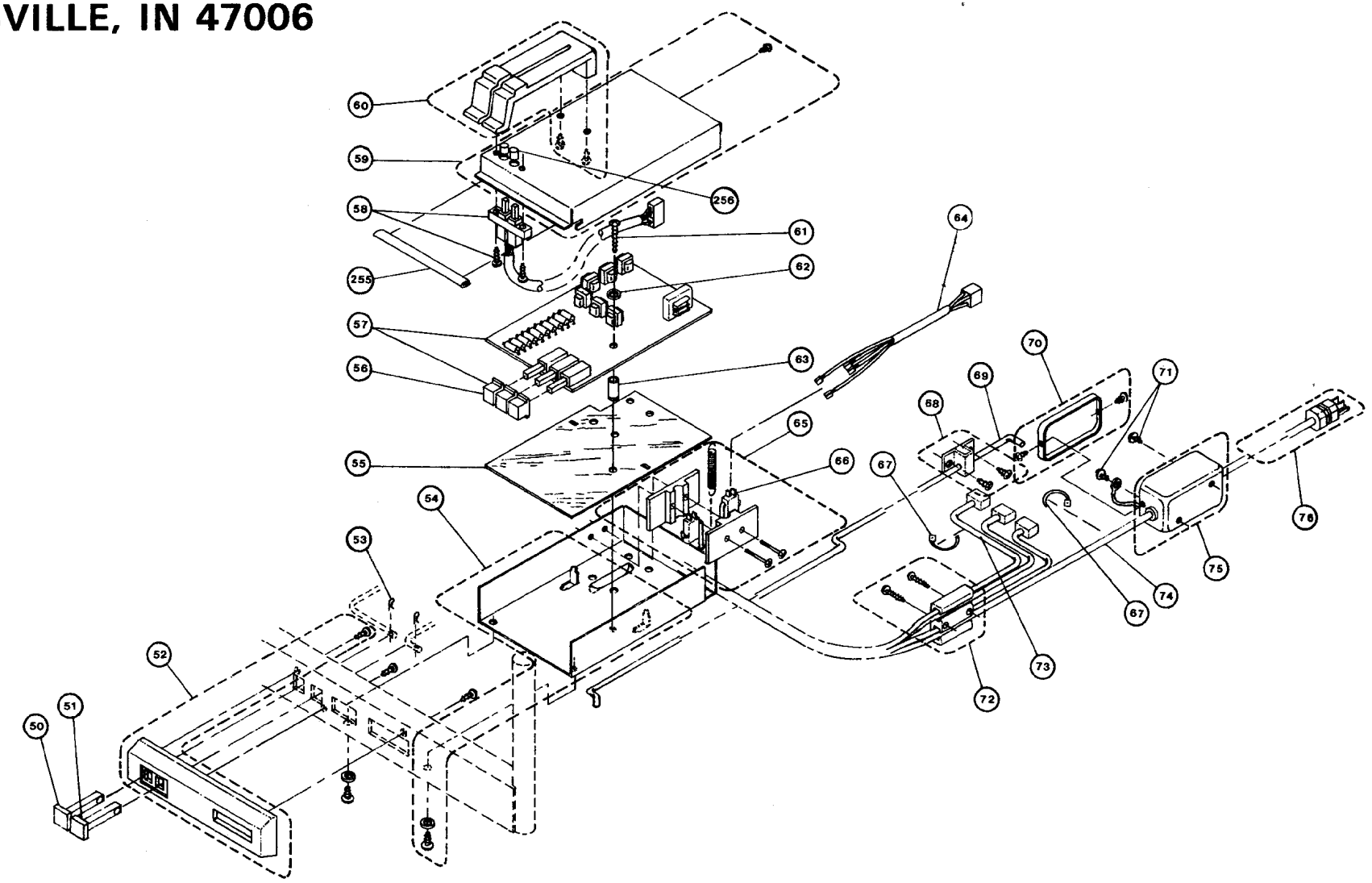

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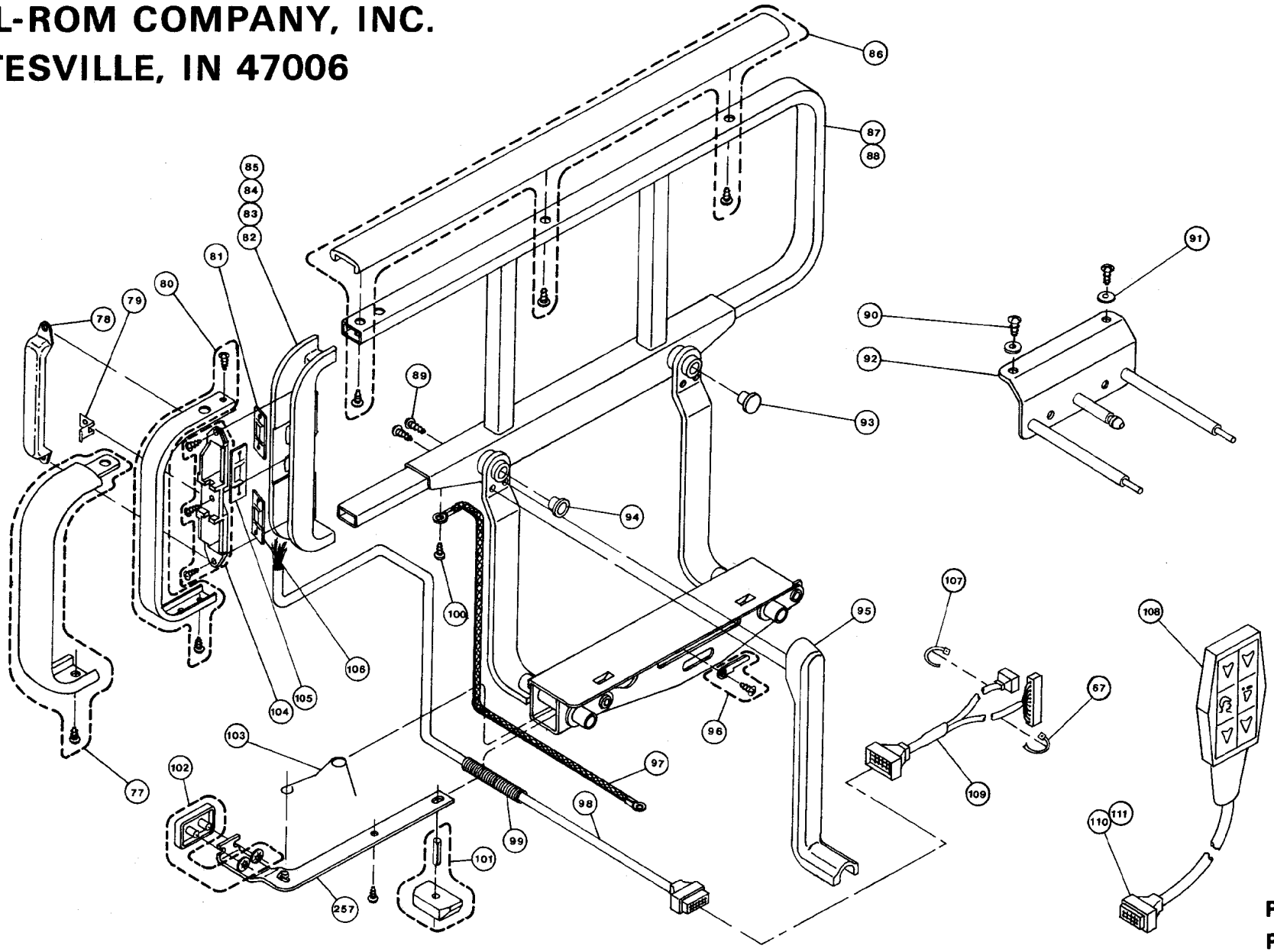

835/837 BED PARTS LIST
HILL-ROM COMPANY, INC.
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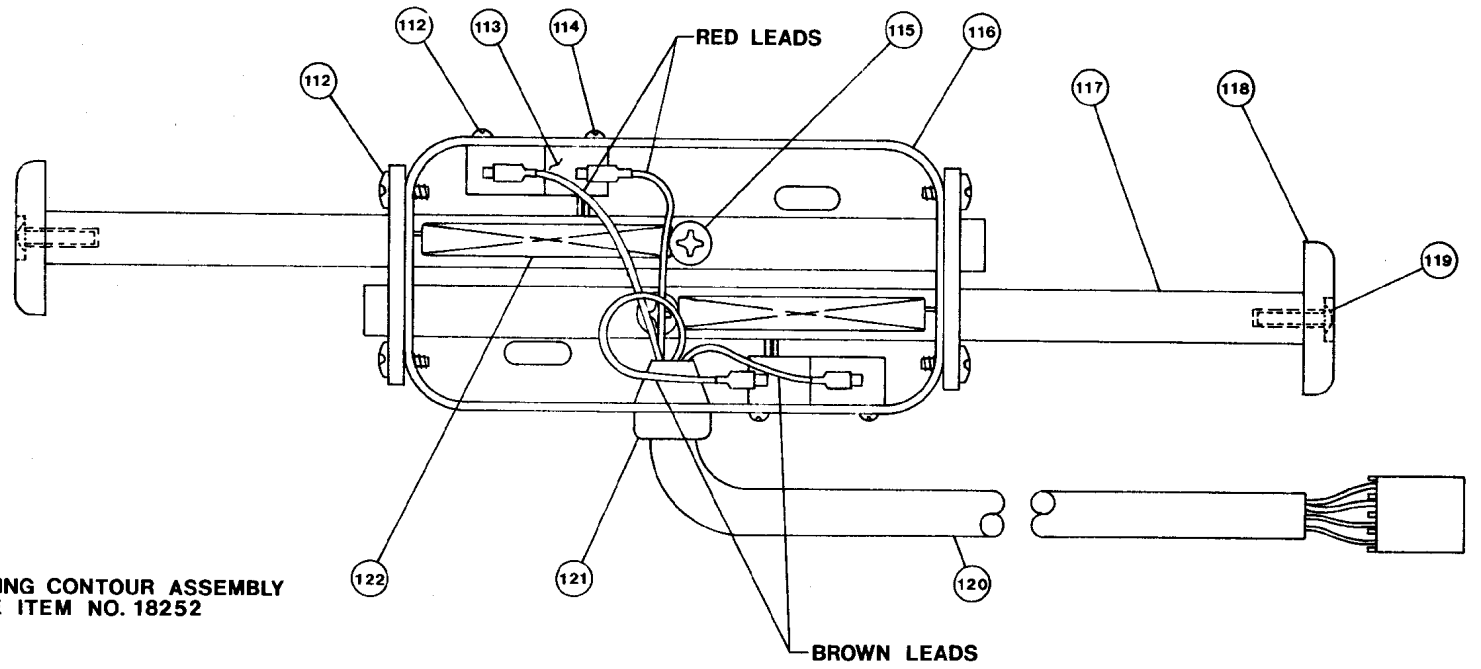
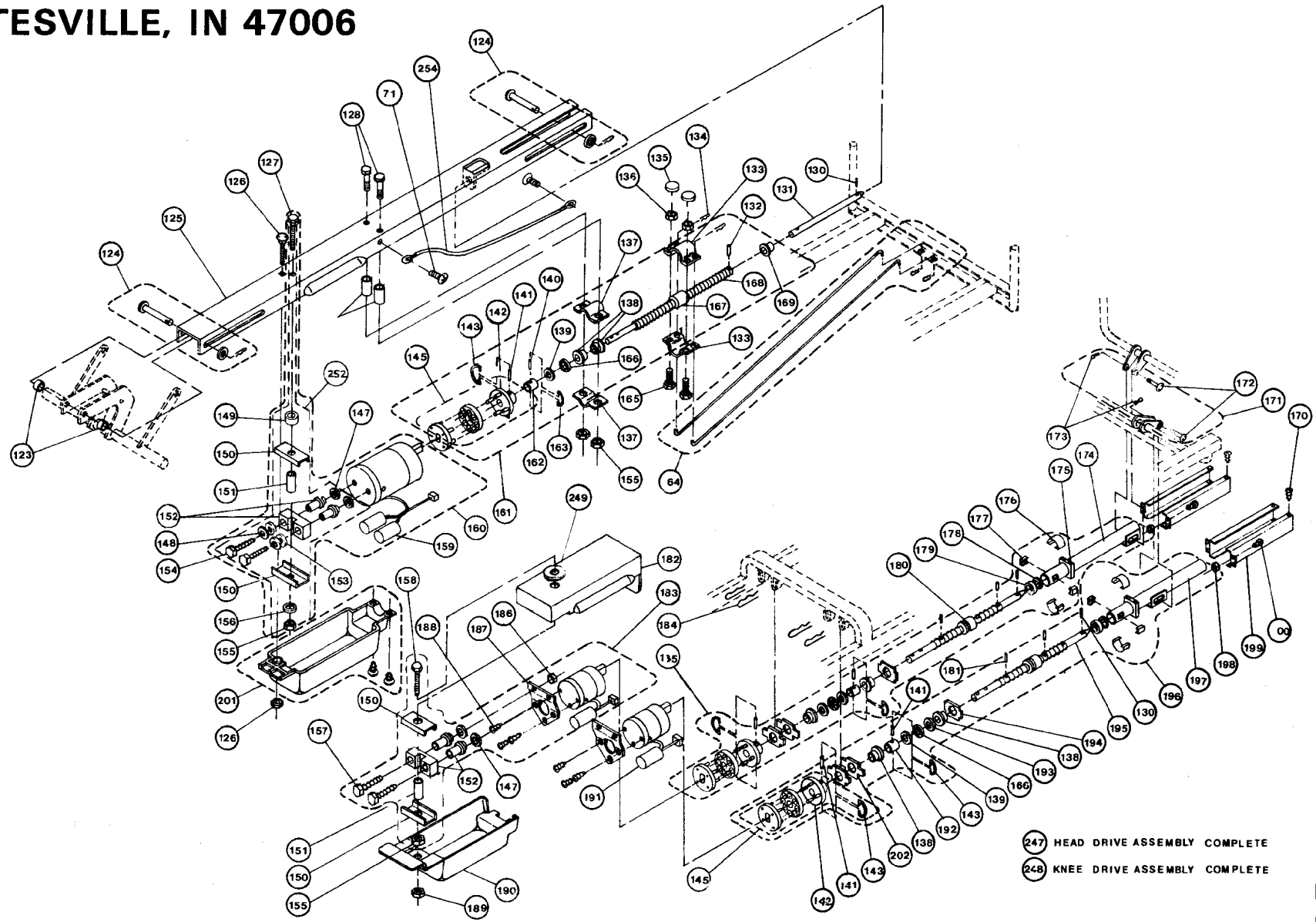
AUTOMATIC CONTOUR ASSEMBLY
ITEM NO. 33020



NOTE:
FOR MOUNTING CONTOUR ASSEMBLY
TO BED USE ITEM NO. 18252

835/837 BED PARTS LIST
HILL-ROM COMPANY, INC.
BATESVILLE, IN 47006



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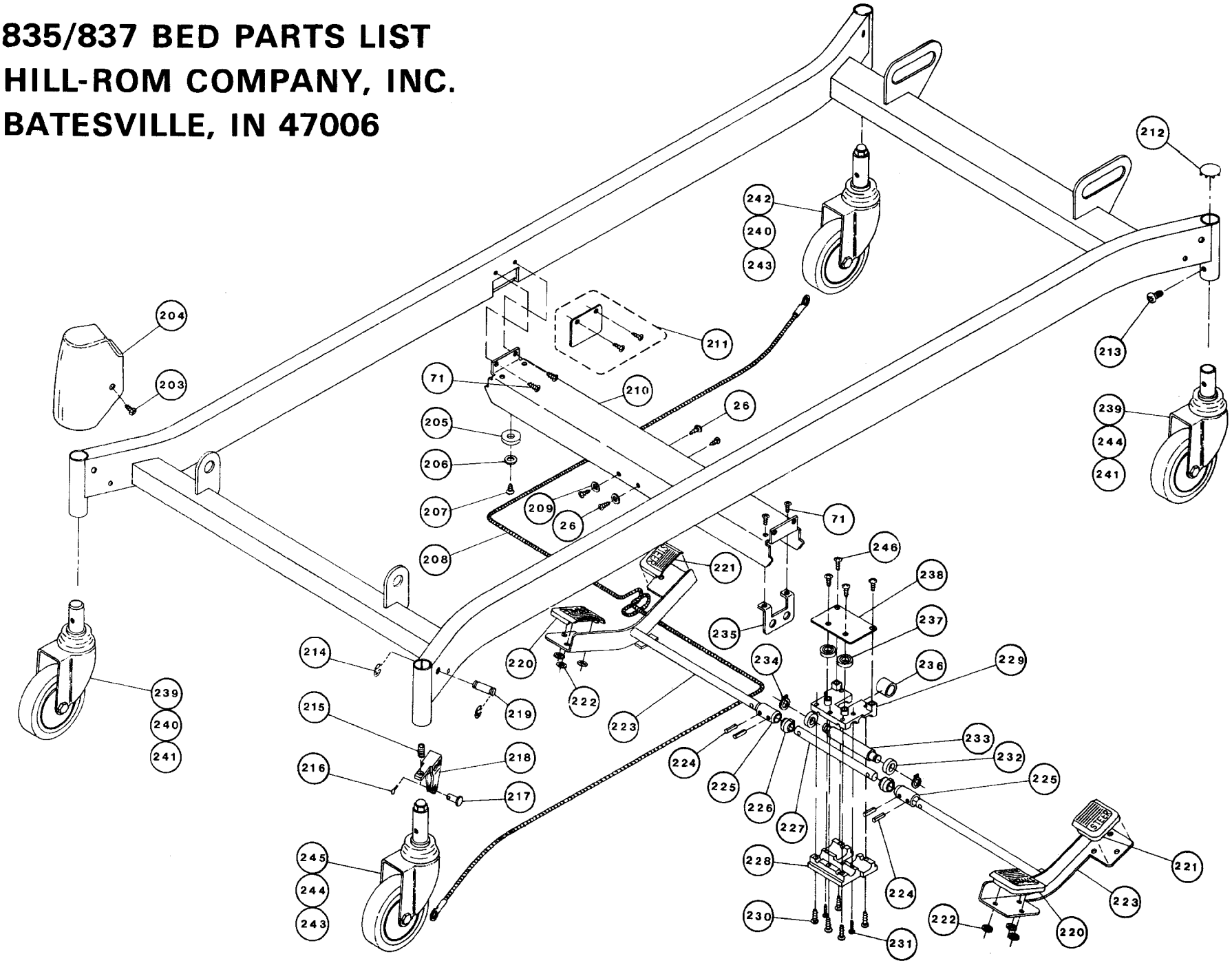

PAGE 83508
PL - 240
H5151084

HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
1	25909	Button
2	SA1090	Hilow button housing, screw (6)
3	25320	Spring
4	25885	Rod
5	25991	Hilow rod cover
6	25992	Screw
7	SA1069	Trendelenburg rod, cotter pin
8	SA1070	Reverse trendelenburg rod, cotter pin
9	28414	Degree label
10	28417	Inch label
11	28418	Degree label
12	28422	Inch label
13	33031	Caution label
14	21898	Grounding label
15	SA0957	Cord clamp, screw
16	32621	Lower lift arm assembly
17	SA1169	Pointer, bushing, retainer ring
18	SA1184	Shoulder bolt, bushing locknut
19	SA0959	Trendelenburg assembly, push nut (2), spring, stop, tip, screw, rivet, mount
20	33358	Push button
21	38156	Push button
22	SA0955	Cord holder, push nut (2), (2 required)
23	SA0956	Panel bracket, screw (6)
24	32629	Foot cover
25	32967	Head end cover
26	10866	Screw
27	31185	Mattress stop
28	33005	Sleeve
29	19528	Spring RH
30	SA1172	Foot rack assembly, shoulder bolt (2), bushing
31	3869	Bushing
32	9936	Shoulder bolt
33	33047	Spring LH
34	34531	Helical
35	34532	Helical
36	12084	Fabric assembly
37	SA1171	Foot & thigh section assembly, shoulder screw (2), bushing (2), washer (2), nut (2)
38	26093	IV storage label
39	24772	Head elevation label
40	25351	Head elevation label RH
41	SA1170	Head section assembly, shoulder screw (2), bushing (2), washer (2), nut (2)

ALL SHIPMENTS F.O.B., BATESVILLE, INDIANA
SUGGESTED MINIMUM ORDER $40.00
ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
SHIPMENT TO BE MADE VIA "BEST WAY" UNLESS OTHERWISE INSTRUCTED

HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
42	12951	Grommet
43	SA0918	Restraint bracket, locknut
44	SA1174	Hard pan foot & thigh section assembly, shoulder bolt (2), bushing (2), washer (2), nut (2)
45	SA0917	Lock, bolt, kepnut
46	29258	Seat pan
47	SA1173	Hard pan head section assembly, shoulder bolt (2), bushing (2), washer (2), nut (2)
48	33346	Button
49	19124	Cable ties
50	24710	Reverse knob
51	24709	Knob
52	SA1178	Nurse control housing, screw (2)
53	11094	Cotter pin
54	SA1177	Control box, screw (2), lockwasher (2)
55	33059	Insulator
56	33006	Button
57	SA1279	PC board assembly
58	SA1179	Nurse hilow switch assembly, screw (2)
59	SA1180	Control box cover, wiring diagram, screw
60	SA1181	Double control lever, screw (2)
61	20364	Screw
62	947	Lockwasher
63	33067	Thread spacer
64	32971	Hilow limit cable assembly
65	SA1182	Hilow switch (2), switch bracket (2), spring, screw (2)
66	33060	Switch
67	20312	Cable clamp
68	SA0972	Limit stop, bracket pad, screw (2)
69	33030	Hilow limit rod
70	SA0966	"J" box cover, screw (2)
71	18921	Screw
72	SA1175	Cable retainer, screw (2)
73	32936	Motor harness
74	32990	Power cord assembly
75	SA0968	"J" box, strain relief, gasket
76	SA1176	Power cord assembly, wire joint
77	SA1084	Sideguard cover front, rivet nut, screw
78	29727	Switch cover
79	29738	Ground bracket
80	SA0996	Channel, screw (2)
81	29699	Control switch
82	20338	Switch housing LH
83	27726	Switch housing LH
84	19836	Switch housing RH

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HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
85	27728	Switch housing RH
86	SA0995	Sideguard cover top, screw (3)
87	36133	Sideguard frame assembly RH
88	36132	Sideguard frame assembly LH
89	31071	Screw
90	17290	Screw
91	25283	Washer
92	23485	Slide bracket assembly
93	29457	Hole plug
94	28717	Bushing
95	19833	Wire cover
96	SA1163	Latch, screw
97	28867	Ground strap assembly
98	19632	Cord set assembly
99	31544	Spring
100	393	Screw
101	SA1082	Latch, roll pin
102	SA0914	Latch cover, push nut (2)
103	28813	Spring
104	SA0912	Switch, mounting bracket, screw (3)
105	29699	Control switch
106	29699	Control switch
107	17292	Cable clamp
108	P721E	Pendant control
109	33004	Control cable assembly
110	22153	Male pin
111	22151	Plug
112	25192	Screw
113	33065	Switch
114	19555	Screw
115	18252	Screw
116	28398	Junction box
117	25193	Push rod
118	25189	Glide button
119	16115	Screw
120	32952	Contour cable
121	34844	Strain relief
122	25320	Spring
123	24497	Spacer
124	SA0980	Clevis pin, washer, cotter pin (2)
125	32703	Hilow drive channel
126	SA0992	Carriage bolt, nut
127	29422	Bolt
128	90016-36	Bolt
129	24502	Spacer

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HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
130	128	Roll pin
131	32963	Extension shaft
132	17860	Roll pin
133	24499	Drive nut clamp
134	17405	Cotter pin
135	25278	Felt
136	9428	Nut
137	24501	Drive nut clamp
138	31648	Oilite bearing
139	11579	Thrust washer
140	12434	Roll pin
141	3517	Roll pin
142	35379	P.C. board assembly
143	17860	Retainer clip
144	VOID	
145	36250	Coupling assembly
146	VOID	
147	3869	Washer
148	17544	Washer
149	29414	Spacer
150	29389	Motor mount channel
151	29411	Spacer
152	36249	Rear motor mount assembly
153	92	Lockwasher
154	90018-32	Bolt
155	831	Locknut
156	19918	Washer
157	90018-28	Screw
158	90016-44	Cap screw
159	27686	Capacitor
160	32999	Hilow motor assembly
161	32972	Hilow screw assembly
162	12223	Thrust collar
163	11873	Retainer clip
164	SA0981	Hilow tie rod (2), cotter pin (4)
165	90017-20	Bolt
166	11578	Thrust bearing
167	24505	Electric hilow nut
168	32962	Hilow Screw
169	24506	Bushing
170	4759	Screw
171	SA0983	Clevis pin (2), cotter pin (2)
172	4453	Pin
173	11093	Cotter pin
174	32600	Head tube assembly

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HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
175	32591	Tube guide
176	27717	Clip
177	27716	Iron dog
178	32960	Push nut
179	32638	Roller
180	32602	Drive nut
181	10640	Roll pin
182	32605	Motor bracket
183	32920	Motor assembly
184	24556	Hair pin
185	32704	Head screw assembly
186	4435	Locknut
187	32604	Motor mounting plate
188	16042	Screw
189	32909	Locknut
190	32606	Motor cover
191	30120	Capacitor
192	32596	Spacer
193	11579	Thrust washer
194	32590	Bearing brace
195	32601	Head & knee screw
196	32705	Knee screw assembly
197	32598	Knee tube assembly
198	3800	Locknut
199	32594	Head screw cover
200	3947	Screw
201	SA0993	Hilow motor cover, screw (2)
202	32589	Mounting plate
203	10866	Screw
204	31113	Leg cover
205	18864	Sheave
206	18891	Washer
207	17232	Screw
208	32585	Cable assembly
209	1012	Washer
210	32640	Mechanism support assembly
211	SA1183	Cover, screw (2)
212	24771	Leg plug
213	32572	Button socket
214	18890	Tru-arc ring
215	32631	Screw
216	11094	Cotter pin
217	757	Connector pin
218	34715	Rocker arm assembly
219	18862	Pin
220	32576	Brake pedal

ALL SHIPMENTS F.O.B., BATESVILLE, INDIANA
SUGGESTED MINIMUM ORDER $40.00
ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
SHIPMENT TO BE MADE VIA "BEST WAY" UNLESS OTHERWISE INSTRUCTED

HI-890-240
FOR MODEL 835/837 BED
REFERENCE PRINT NO. PL-240

HILL-ROM COMPANY, INCORPORATED
Batesville, Indiana 47006

ITEM #	PART #	DESCRIPTION
221	32575	Steer pedal
222	29788	Twist nut
223	32583	Pedal assembly
224	9685	Roll pin
225	18859	Coupling
226	32428	Cam
227	33360	Cam shaft
228	18903	Mechanism block bottom
229	33303	Mechanism block top
230	18920	Screw
231	25131	Screw
232	31211	Bearing
233	18860	Follower shaft
234	12220	Tru-arc ring
235	18944	Pedal bracket
236	18863	Roller
237	18887	Unground bearing
238	34516	Stiffener plate
239	31632	Tente plain swivel caster
240	25635	Tente total lock caster
241	33023	Black plain swivel caster
242	33865	Tente direct lock caster
243	33024	Black total brake caster
244	25636	Tente steer caster
245	33866	Tente caster
246	33572	Screw
247	32607	Head drive assembly (includes: motor assembly complete, head screw assembly and covers)
248	32608	Knee drive assembly (includes: motor assembly complete, knee screw assembly and covers)
249	17175	Washer - rubber
250	22646	Felt pad
251	34318	Rubber strip
252	SA1148	Motor mount parts
253	34838	Vinyl cap
254	34986	Ground strap
255	35186	C box seal
256	35085	Switch seal
257	28695	Sideguard arm

ALL SHIPMENTS F.O.B., BATESVILLE, INDIANA
SUGGESTED MINIMUM ORDER $40.00
ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
SHIPMENT TO BE MADE VIA "BEST WAY" UNLESS OTHERWISE INSTRUCTED

USING THE PARTS LIST

The two pages immediately following the index consist of four small drawings each showing particular sections of the bed. They are intended to be quick reference pages set up for your convenience in identifying parts.

With a particular part in mind, locate it on one of the eight drawings and refer to the page number corresponding to that drawing. You will find the same drawing only in a blown-up format. Again find your part and locate the balloon that corresponds to your part or to a dotted line that surrounds yours and other parts.* Inside the balloon is an item number that can be found on the list of item numbers immediately following the blown-up drawings. Next to the item numbers you will find the part number and the description of the part you have in mind.

EXAMPLE: If you are looking for the part number of the cable assembly for the locking base system, scan through the quick reference drawings, find the base drawing and then turn to page 835008. Locate the cable assembly and the associated item number balloon, which in this case is item number 208. Look this item number up in the list of item numbers and you will find that the part number is 32585 CABLE ASSEMBLY. This would be the number you would order for a replacement cable assembly.

* As a convenience to our customers, Hill-Rom provides "Service Assemblies", which is a group of parts sold under one part number. We indicate these "Service Assemblies" with a dotted line around the group of parts on the drawings.

ORDERING SERVICE PARTS

There are several ways to order service parts from Hill-Rom. One is to contact your local Hill-Rom Sales Representative. Another is to phone the Hill-Rom Company "Customer Service Department" direct.

Please have the hospital purchase order number available when ordering parts.

For hardware items, we normally require twenty-four (24) hours to process service orders. For wood parts, however, it will take somewhat longer due to the fact that we rarely stock wood parts (finished). Therefore four (4) to five (5) weeks is a more realistic time span to consider when ordering replacement wood parts.

We normally ship service orders by U.P.S. However, we will ship by air or any other way you would like us to ship.

We suggest a minimum of $40.00 when placing orders for service parts. This will help to prevent an increase in the cost of processing your service order.

EXCHANGE PROGRAM - MOTORS AND PRINTED CIRCUIT BOARDS

Some of our customers, for one reason or another, choose not to repair defective motors and printed circuit boards. For these customers Hill-Rom provides an Out of Warranty Exchange Program.

(Continued on the following page)

OUT OF WARRANTY EXCHANGE

Hill-Rom has a two year warranty on parts only, so by contacting Hill-Rom's Service Department and requesting an exchange motor or printed circuit board, Hill-Rom will ship a replacement motor or printed circuit board along with a bill for the exchange price and shipping charge. The exchange price is a substantial savings to the hospital as compared to the price of a new motor or printed circuit board. The replacement motor or printed circuit board will carry a new one (1) year warranty.

The hospital is expected to return the defective equipment to Hill-Rom within thirty (30) days. In the event the hospital fails to return the defective equipment within thirty (30) days, Hill-Rom will invoice the hospital the cost difference between the exchange price and the new part price of the item.

IN WARRANTY EXCHANGE

In the event a part is defective within two (2) years of the date of delivery of the product, contact Hill-Rom's Customer Service Department and Hill-Rom will exchange the defective part and ship the replacement.

In some cases, the invoice sent with the parts will show the full selling price of the parts. This is for internal use only and should not be confused with being a bill.

Hill-Rom will request that the defective parts be returned for inspection in some cases. If indeed Hill-Rom does request the parts, the hospital is expected to return the parts within thirty (30) days.

If the hospital fails to return the defective parts within the thirty (30) day period, Hill-Rom will invoice the hospital for the full selling price of the parts. This billing procedure pertains to parts Hill-Rom requests to be returned only.

BED SPECIFICATIONS

Description - This bed shall be capable of easily achieving Frame Trendelenburg, Frame Reverse Trendelenburg and Cardiac Chair position. This bed shall be made of a combination of wood and metal. The head and foot panels shall be removable.

Dimensions - (Approximate)

Height overall - Foot end - High position..... 39"
Height overall - Foot end - Low position..... 27"
Height overall - Head end - High position..... 41"
Height overall - Head end - Low position..... 29"
Height floor to top of spring - High position..... 30"
Height floor to top of spring - Low position..... 18"

(Continued on the following page)

Overall width . . . . . 36.5"

Total hilow travel . . . . . 12"

Sleeping surface . . . . . 36" x 80"

Overall length (without bumpers) . . . . . 88"

Overall length (with Enviro-Care bumpers #819) . . . . . 88"

Overall length (with roller bumpers #818) . . . . . 92"

Weight - Century Series

with head guard only	295 lbs.
+ head and foot boards	25 lbs.
+ foot guards	25 lbs.
Century Series	250 lbs.
+ head guards 1/2 length	25 lbs.
+ full or 3/4 length guards	35 lbs.
+ head and foot boards	25 lbs.
Century Series	235 lbs.
+ head and foot boards	25 lbs.
+ head guards 1/2 length	25 lbs.
+ full or 3/4 length guards	35 lbs.

Hard Pan
any version add 40 lbs.

Drive Units - There shall be (3) individual motors to power the seperate functions of the bed. These motors shall be a combination of motor and gear case. Their power cords shall encompass a plug-in design so as to make the motors easily and rapidly removable from the bed in the event of motor problems, with the use of commonly found tools in a maintenance shop. These motors shall be designed and made especially for the individual functions they are to perform. Standard shelf motors not designed with the proper horsepower, gear ratio, etc., will not be acceptable. The motors shall be electrically insulated from the metal parts of the bed. The insulation materials shall be of the type that will not deteriorate with age or use.

The hilow motor shall have the following specifications:

3.85 Amps Maximum
1/4 H.P.
Instant Reve-sing
Permanently Lubricated
Totally enclosed
115 Volts A.C., 60 Hertz
Single Phase
Overload protected with Automatic Reset Thermal with timed step out on maintain function

The head and knee motors shall have the following specifications:

1.8 Amps Maximum
1/8 H.P. Instant Reversing
Permanently Lubricated
Totally enclosed
115 Volts A.C., 60 Hertz
Single Phase
Overload protected with Automatic Reset Thermal

(continued on the following page)

The supply cord shall be #18 AWG, 3 conductor type STO. It shall extend six feet from the head end of the bed. The supply cord and attachment plug cap shall be a U.L. listed combination.

The motor shall have manual crank capabilities to allow operation in the event of power failure.

All pivot points and elevating nuts shall be permanently lubricated type materials.

The hilow control shall be located in the upper portion of the foot panel, pictorially labelled to indicate its function and shall be in immediate visual contact with the nurse. It shall contain a momentary type "Up" switch and a momentary "Down" switch which requires continuous contact with the switch to raise or lower the bed to its limits. The travel of the bed may be stopped at any point desired by releasing the switch.

A guage indicating the degree of head elevation shall be located on both sides of the bed readily visible to operating personnel.

Trendelenburg Operation - The control for achieving trendelenburg position shall be conveniently located in the foot end of the bed. The trendelenburg and reverse trendelenburg functions shall be accomplished by raising bed to high position, pulling desired function selector, identified in international symbols and lowering bed. In conjunction with the trendelenburg feature, there are visual markers on both sides of the bed indicating the degree as well as the inches of shock position as it is being obtained.

To bring the bed out of trendelenburg or reverse trendelenburg position, raise the bed to high position. The trendelenburg mechanisms shall automatically disengage.

There is to also be located in the foot end nurse control panel, the individual lockout switches for head elevation, and knee elevation.

I.V. Rod Locations - There shall be six retainers for I.V. Rod use. Two retainers are to be located in the center of the bed spring (one on each side), (2) at the head end of the bed (one on each side), and (2) at the foot end of the bed (one on each side) with all of the retainers being welded to the steel structure of the bed for rigidity not only in I.V. Rod use, but structurally strong enough for use with the various types of fracture equipment.

Casters - All casters shall be recessed in from the ends of the bed as well as the side of the bed to prevent accidental tripping by the attendent, patient or visitor.

The wheel base of the bed shall be 27" wide by 60.5" long so as to make the bed easy to transport and highly mobile.

Sleeping Surfaces of Beds - Hill-Rom provides two types of sleeping surfaces on our beds. The most common is the National Link Spring Fabric surface used in conjunction with the helical springs. Our other sleeping surface is Hard Pan Steel. In the case of the spring fabric beds, we have a special helical spring puller available which is used for releasing or rehooking the helical springs. The part number for this tool is SA3524.

RECOMMENDED SPARE PARTS LIST

BASIC 835 BED

QUANTITY	PART NUMBER	DESCRIPTION
10	24709	Trendelenburg knob
10	24710	Reverse trendelenburg knob
1	SA1279	P.C. board assembly
1	32920	Motor assembly (head/knee)
1	32999	Motor assembly (hilow)
1	SA0790	Lubrication kit
4	SA0959	Trendelenburg assembly complete
4	36250	Coupling
1	SA1187	Miscellaneous hardware kit
1	SA0770	Miscellaneous roll pin kit
1	18942	Touch up paint (aerosol can)

If your beds are equipped with bed function sideguards, additional spare parts are recommended as follows:

QUANTITY	PART NUMBER	DESCRIPTION
2	82W103	Control switch - head
2	82W104	Control switch - knee
2	82W102	Control switch - hilow (if applicable)
10	SA0914	Latch cover, pushnut (2)
2	32613	Sideguard top cover
2	SA1084	Sideguard front cover

If your beds are equipped with SideCom model 382, additional spare parts are recommended as follows:

QUANTITY	PART NUMBER	DESCRIPTION
2	82W103	Control switch - head
2	82W104	Control switch - knee
2	82W102	Control switch - hilow (if applicable)
10	SA0914	Latch cover, pushnut (2)
2	32612	Sideguard top cover
2	28305	Sideguard front cover
1	28954	SideCom circuit board assembly
10	28295	Volume knob
1	28508	Nurse call module LH
1	28509	Nurse call module RH
1	34434	Communications module

(Continued on the following page)

If your beds are equipped with SideCom model 383, additional spare parts are recommended as follows:

QUANTITY	PART NUMBER	DESCRIPTION
2	82W103	Control switch - head
2	82W104	Control switch - knee
2	82W102	Control switch - hilow (if applicable)
10	SA0914	Latch cover, pushnut (2)
2	32612	Sideguard top cover
2	28305	Sideguard front cover
10	28295	Volume knob
1	28954	SideCom circuit board assembly
1	34434	Communications module
1	28506	Lighting module LH
1	28507	Lighting module RH
1	28508	Nurse call module LH
1	28509	Nurse call module RH

If your beds are equipped with pendant control, additional spare parts are recommended as follows:

QUANTITY	PART NUMBER	DESCRIPTION
1	P721E	Pendant control

Hill-Rom feels these lists should be sufficient for fifty beds.

PREVENTIVE MAINTENANCE CHECK LIST

It is not recommended that beds be brought off the patient room floor on a systematic basis for PM.

It is recommended that the following items be checked whenever a bed becomes available.

1. Check sideguards for locking in the "UP" position.
2. Check sideguards if they will rotate "DOWN" and store under the bed frame.
3. Check trendelenburg latch assembly.
4. Check brake/steer caster adjustment.
5. Check microamp leakage.
6. Clean and lubricate, as required.

(Continued on the following page)

7. Check power cord for cracks and breaks.

8. Check capacitors.

WHEN LUBRICATING BED DO NOT USE ANY LUBRICANT CONTAINING SILICONE ANYWHERE ON THE BED. For proper lubrication see "LUBRICATION REQUIREMENTS".

LUBRICATION REQUIREMENTS

Hill-Rom uses oilite bearings and bushings in several places throughout the bed. Oilite bearings and bushings have pores that retain oil thus giving them a self-lubricating quality. However, this self-lubricating quality will be neutralized if any lubricant containing silicone is used on them or anywhere else on the bed. DO NOT USE ANY LUBRICANT CONTAINING SILICONE ANYWHERE ON THE BED.

Listed below are the lubricants which can safely be used on the bed.

1. M-1 Penetrating Oil Hill-Rom Part Number 8252 - Small bottle (use on Oilite Bushings and Bearings)
2. Lubriplate Grease Hill-Rom Part Number 8684 - Small tube (use on Drive Screws)
3. Gear Grease Hill-Rom Part Number SA3300 - Small tube (use on Motor Gears Only)
4. Teflon Spray Lubricant (Dry) Hill-Rom Part Number SA0646 - Aerosol spray can (use Anywhere else bed Needs Lubrication)

WATER MATTRESS USAGE ON ELECTRIC BEDS

The excessive weight associated with water mattresses puts an undue stress on motor drives. In most cases the patient's weight plus the water mattress weight exceeds the recommended bed capacity. Even more important is the fact that water mattresses are subject to rupture which would allow large amounts of water to come in contact with the electrical components of the bed. We feel the possibility of rupture to be a serious problem that the hospital would not want to be responsible for.

AUTOMATIC CONTOUR

This feature is only standard on the 835A beds. It consists of a small box with two plunger rods sticking out either end and is located beneath the patient's seat section on the left side of the bed (See diagram "A"). As the head section is raised, the knee section raises at the same time until it reaches 15° elevation. This feature can be locked out, if desired by using the knee lockout switch at the foot of the bed (See diagram "B").

(continued on the following page)

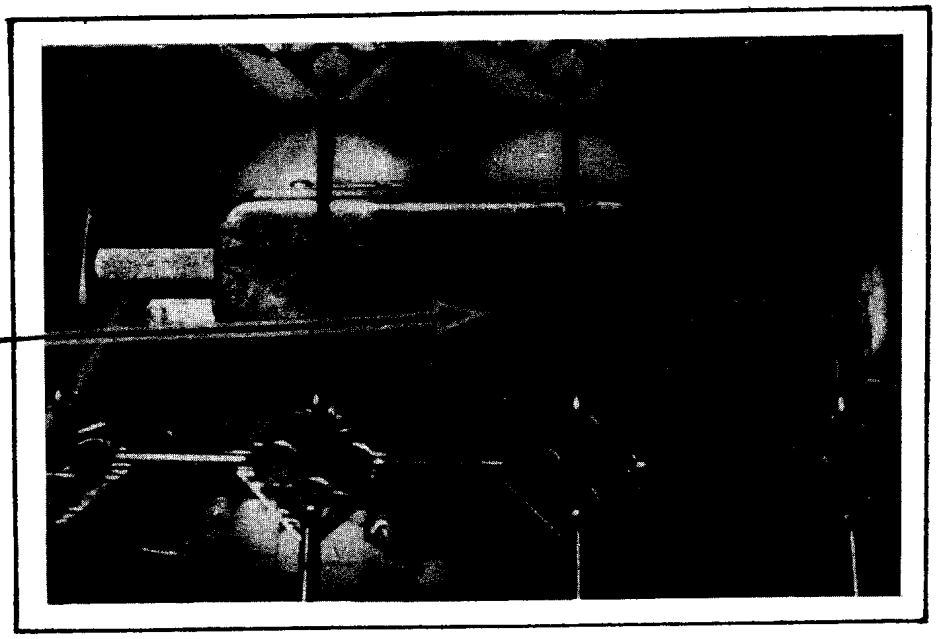


DIAGRAM "A"

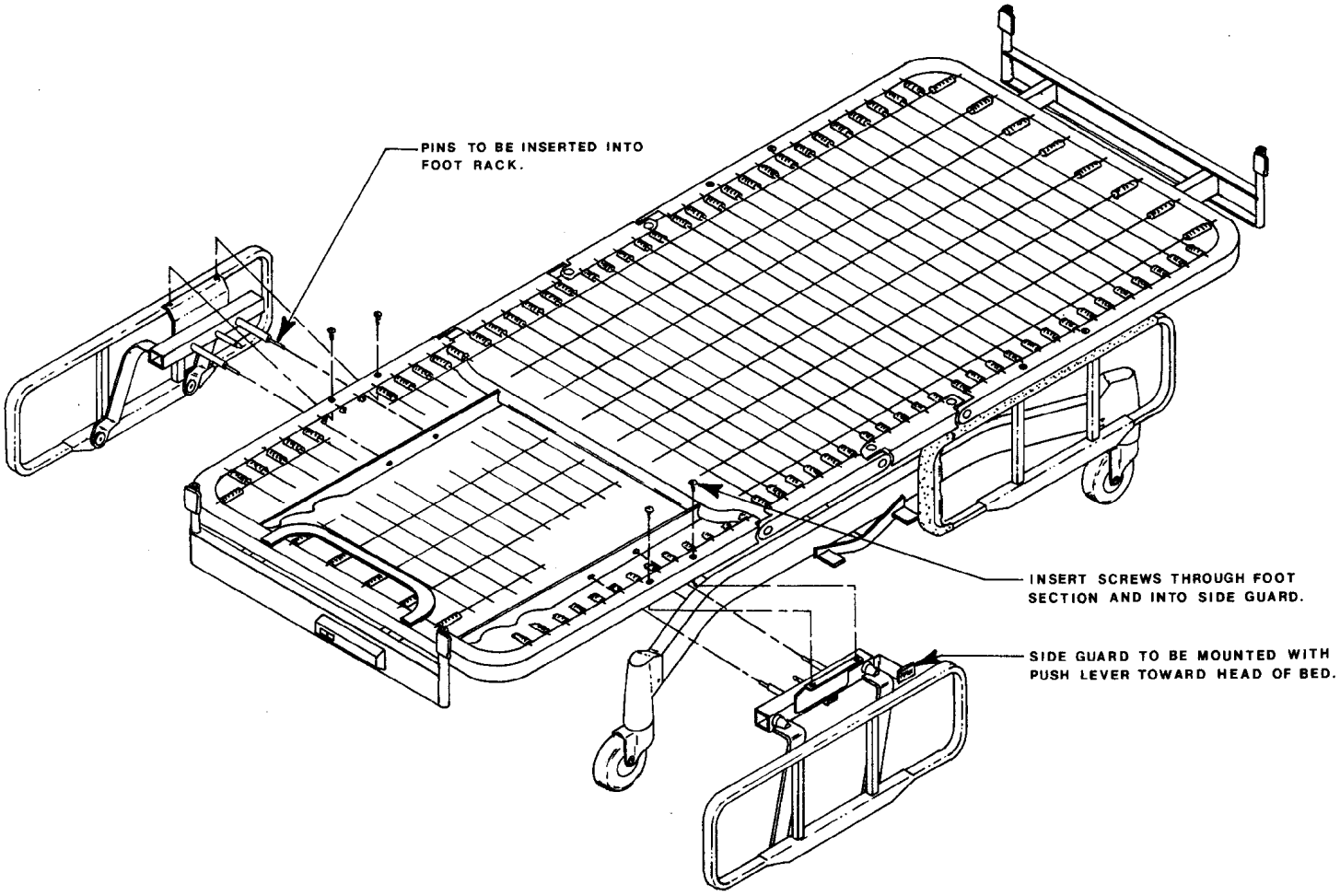
DIAGRAM "B"

BED ENDS

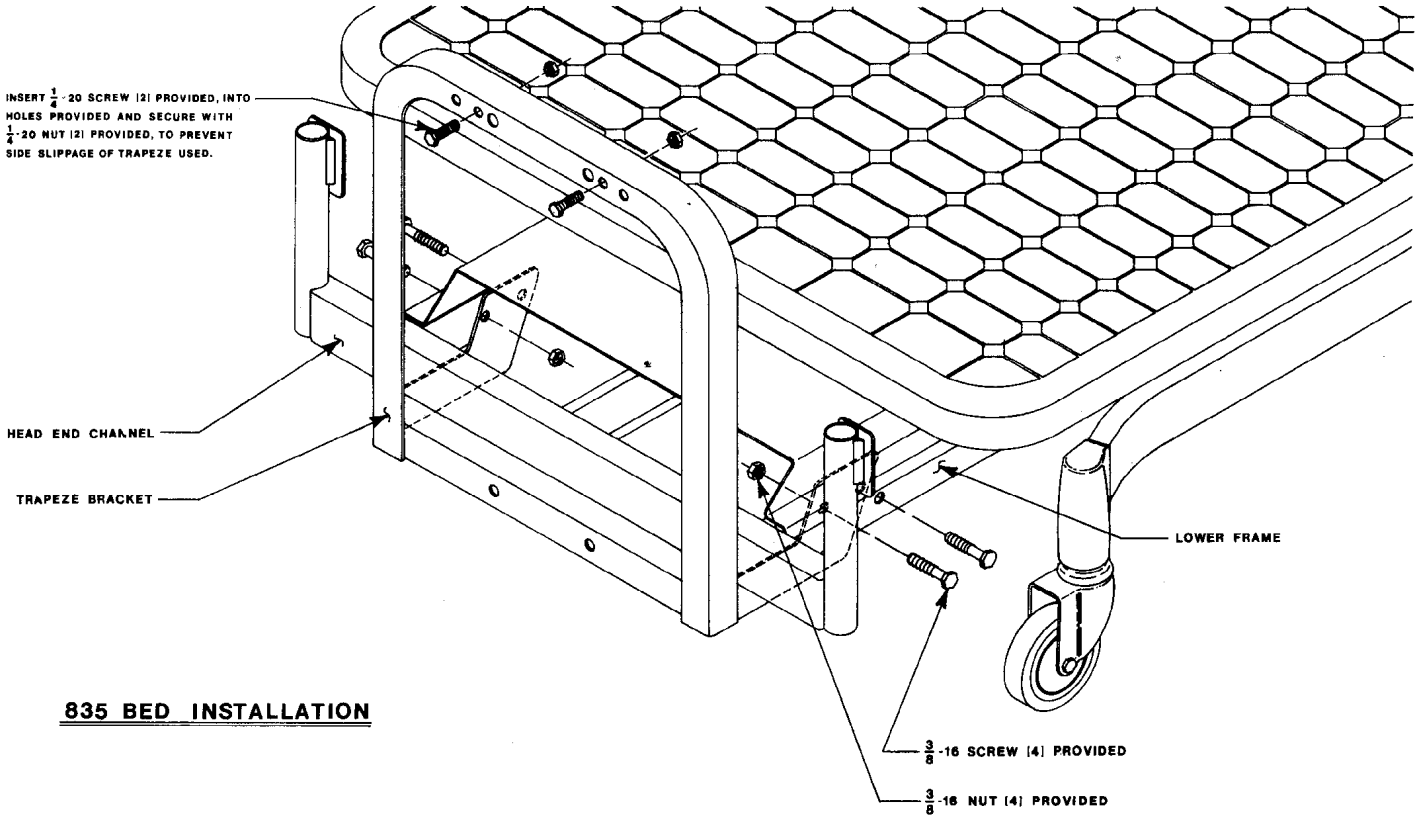
The bed ends on all 835 beds are bayonet type mounting. To remove, grasp the bed end on each end and lift straight up and off the bed frame.

If it becomes necessary to replace an entire bed end, please specify the wood finish when ordering. If this is not known, please send a two or three inch square of the old bed end for color matching.

SIDEGUARD ASSEMBLY INSTRUCTIONS - 325 - FOOT END

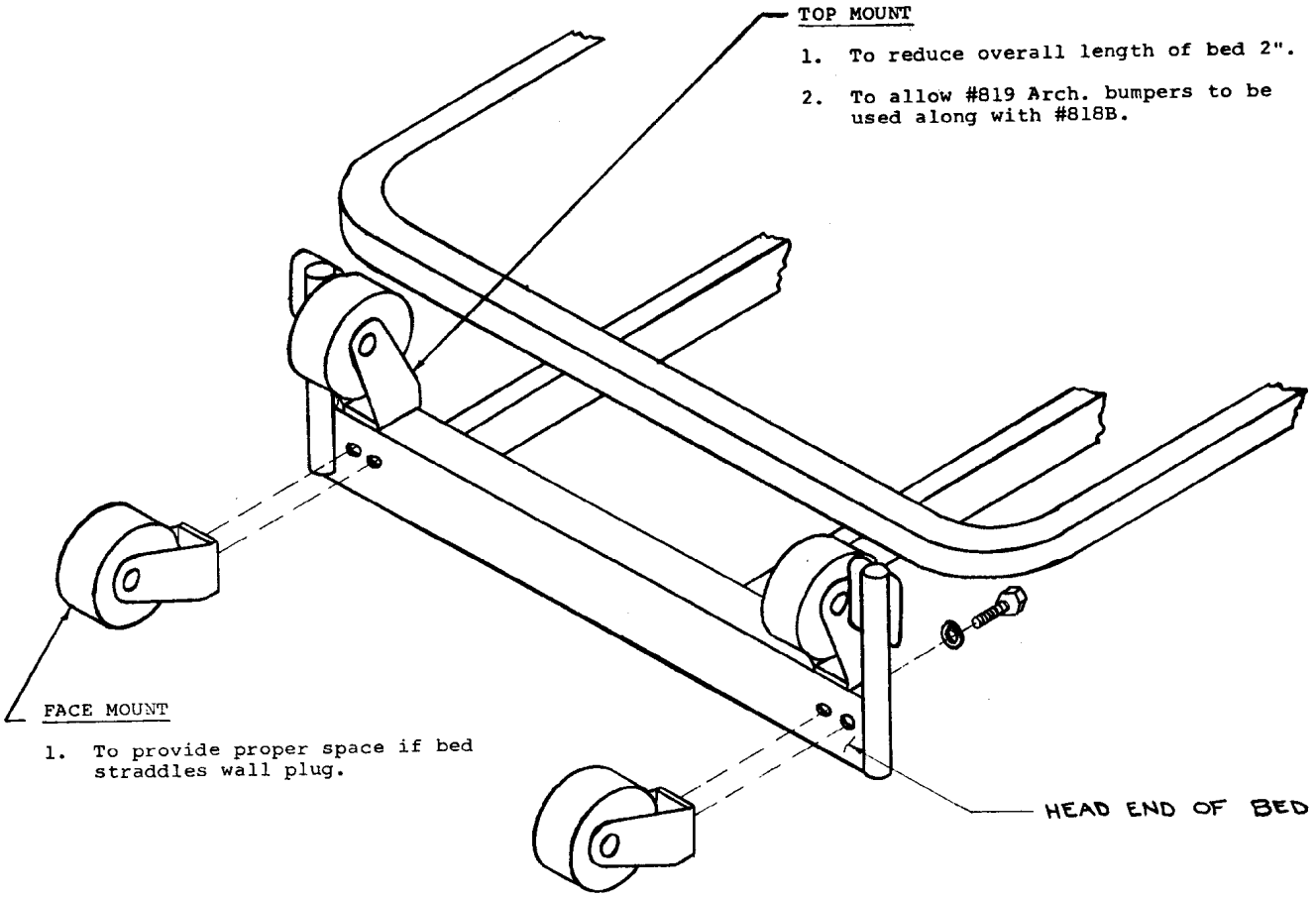

PINS TO BE INSERTED INTO FOOT RACK.
INSERT SCREWS THROUGH FOOT SECTION AND INTO SIDE GUARD.
SIDE GUARD TO BE MOUNTED WITH PUSH LEVER TOWARD HEAD OF BED.

TRAPEZE SUPPORT ASSEMBLY INSTRUCTIONS - 846

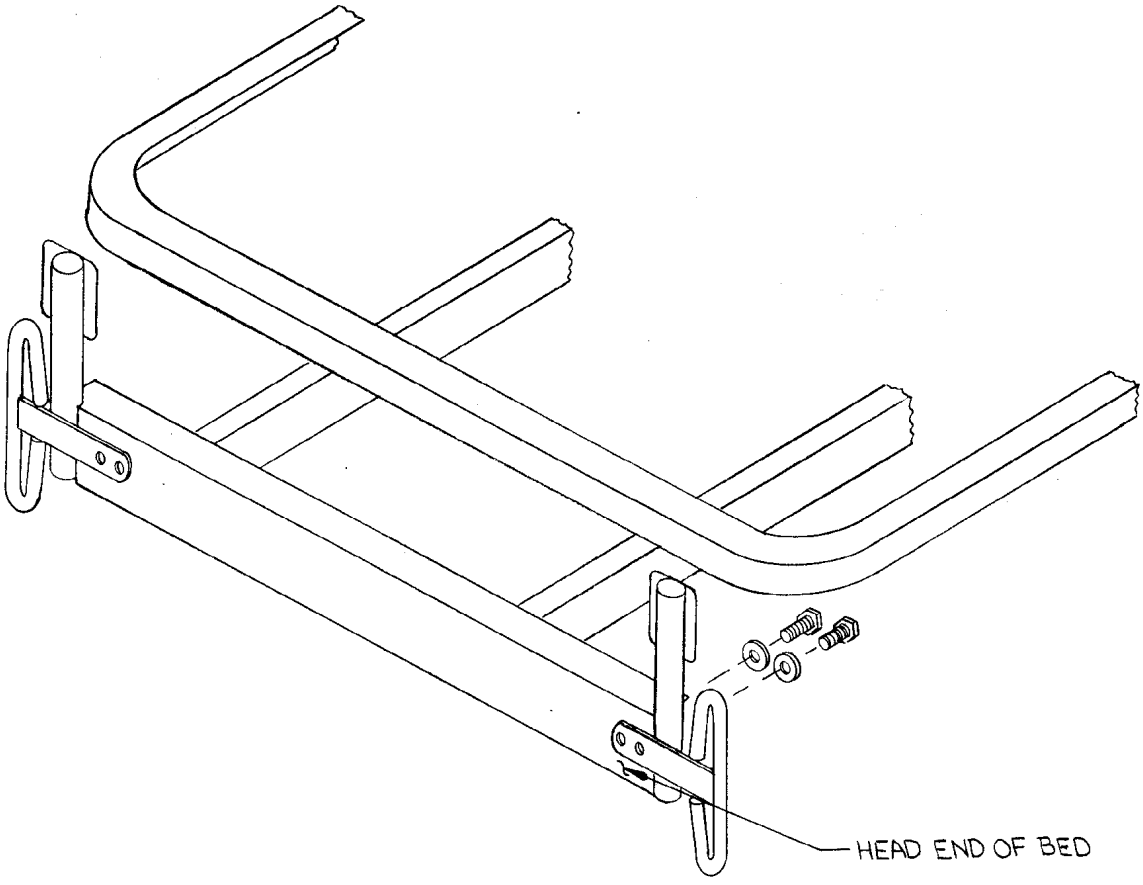

INSERT 1/4-20 SCREW [2] PROVIDED, INTO HOLES PROVIDED AND SECURE WITH 1/4-20 NUT [2] PROVIDED, TO PREVENT SIDE SLIPPAGE OF TRAPEZE USED.
HEAD END CHANNEL
TRAPEZE BRACKET
LOWER FRAME
3/8-16 SCREW [4] PROVIDED
3/8-16 NUT [4] PROVIDED

835 BED INSTALLATION

ROLLER BUMPER - ASSEMBLY INSTRUCTIONS - 818B

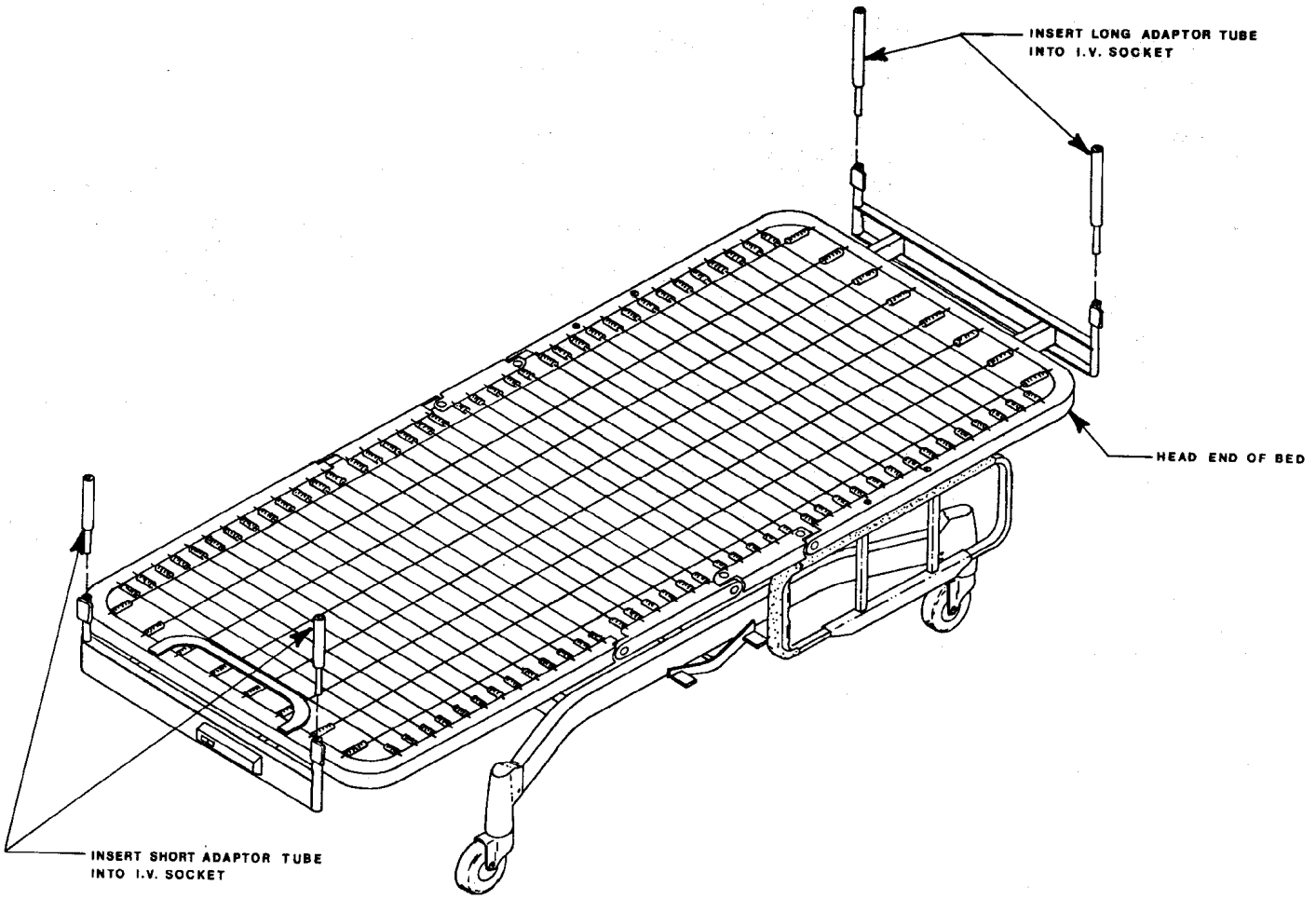

TOP MOUNT
1. To reduce overall length of bed 2".
2. To allow #819 Arch. bumpers to be used along with #818B.
FACE MOUNT
1. To provide proper space if bed straddles wall plug.
HEAD END OF BED

ARCHITECTURAL BUMPER ASSEMBLY INSTRUCTIONS - 819



FRACTURE FRAME ADAPTER SOCKETS - 847, 847A

Hill-Rom has two different fracture frame adapter socket sets available to handle most fracture frame equipment. The Model 847 sockets have a three-quarter (3/4) inch inside diameter while the 847A sockets have a one-half (1/2) inch inside diameter. Please specify which size is needed when ordering.



BED EXTENDER ASSEMBLY INSTRUCTIONS - P99-12

1. Remove the bed end.
2. Attach the lower extender as shown in diagram "A".
3. Tighten the locking device as shown in diagram "B".
4. Slide the upper extender onto the foot section as shown in diagram "C".
5. Bed extender will add 12 inches to foot section of bed as shown in diagram "D".

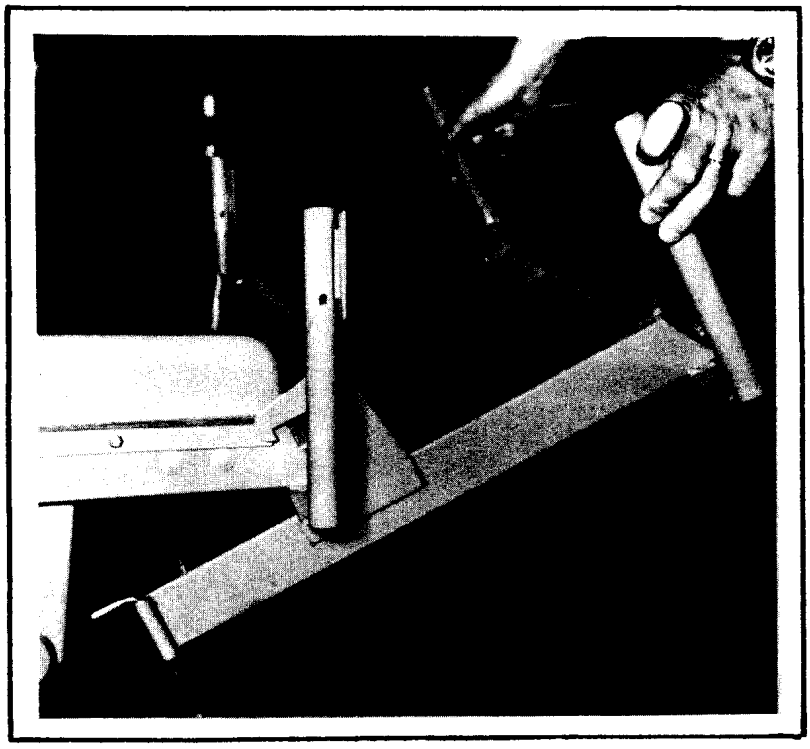


DIAGRAM "A"

DIAGRAM "B"

DIAGRAM "C"

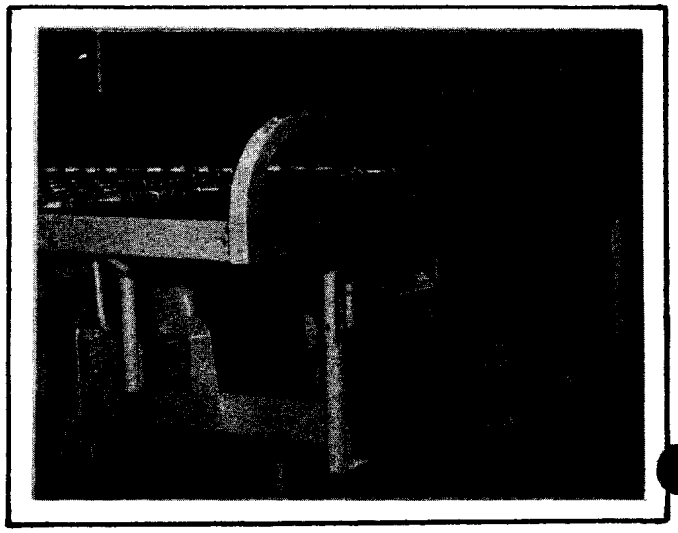
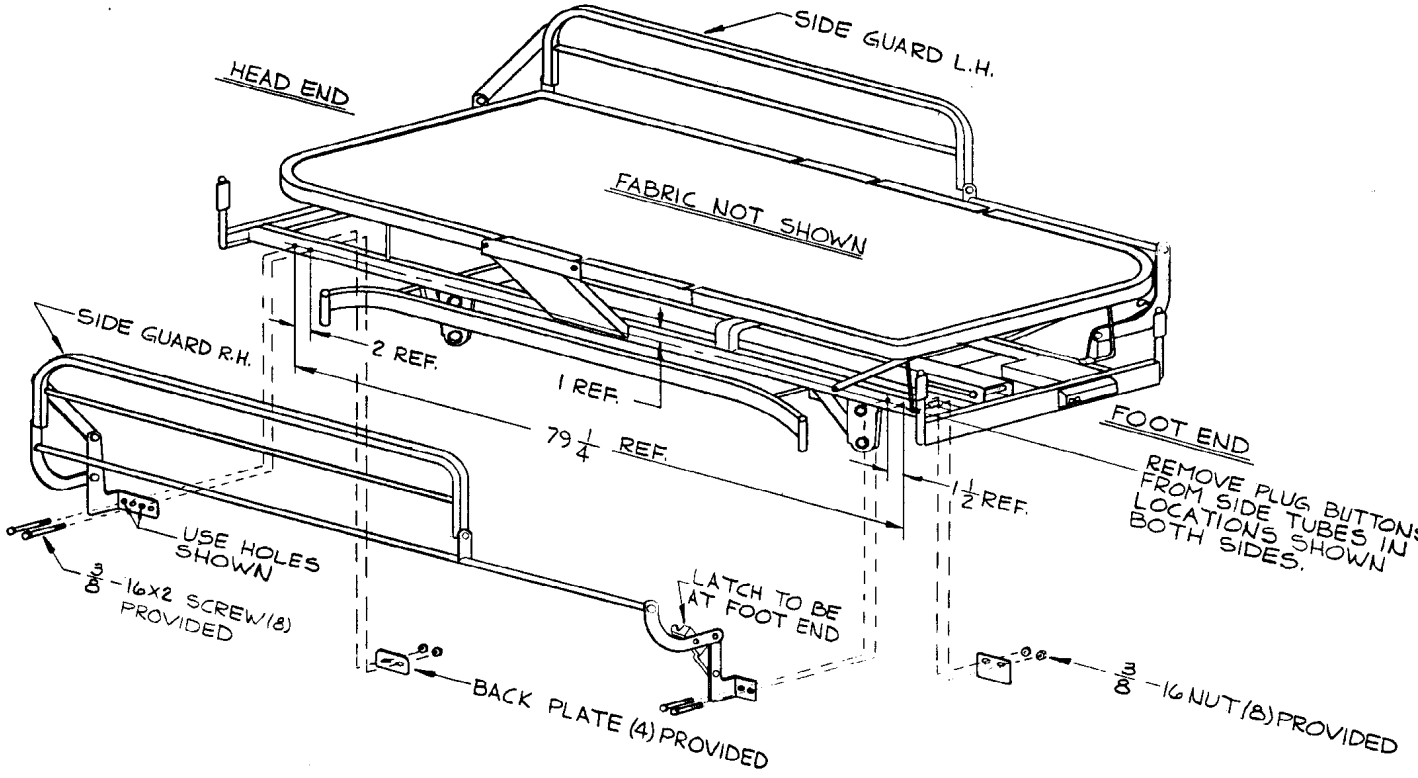


DIAGRAM "D"

SIDEGUARD ASSEMBLY INSTRUCTIONS - 332 THREE-QUARTER LENGTH

1. Rotate the arms and the mounting brackets of the sideguard into the "up" position as shown in the diagram below.
2. Remove the plug buttons from the side tubes of the bed in the locations where the mounting brackets of the sideguard will mount. See the diagram below.
3. Place the sideguard mounting brackets against the side tube of the bed. Line up the holes and insert the four bolts through the mounting bracket and the side tube. Assemble the two back plates onto the protruding bolts on the inside of the side tube and secure the sideguard with four 3/8-16 locknuts as shown in the diagram below.
4. Repeat the procedure for the other sideguard.

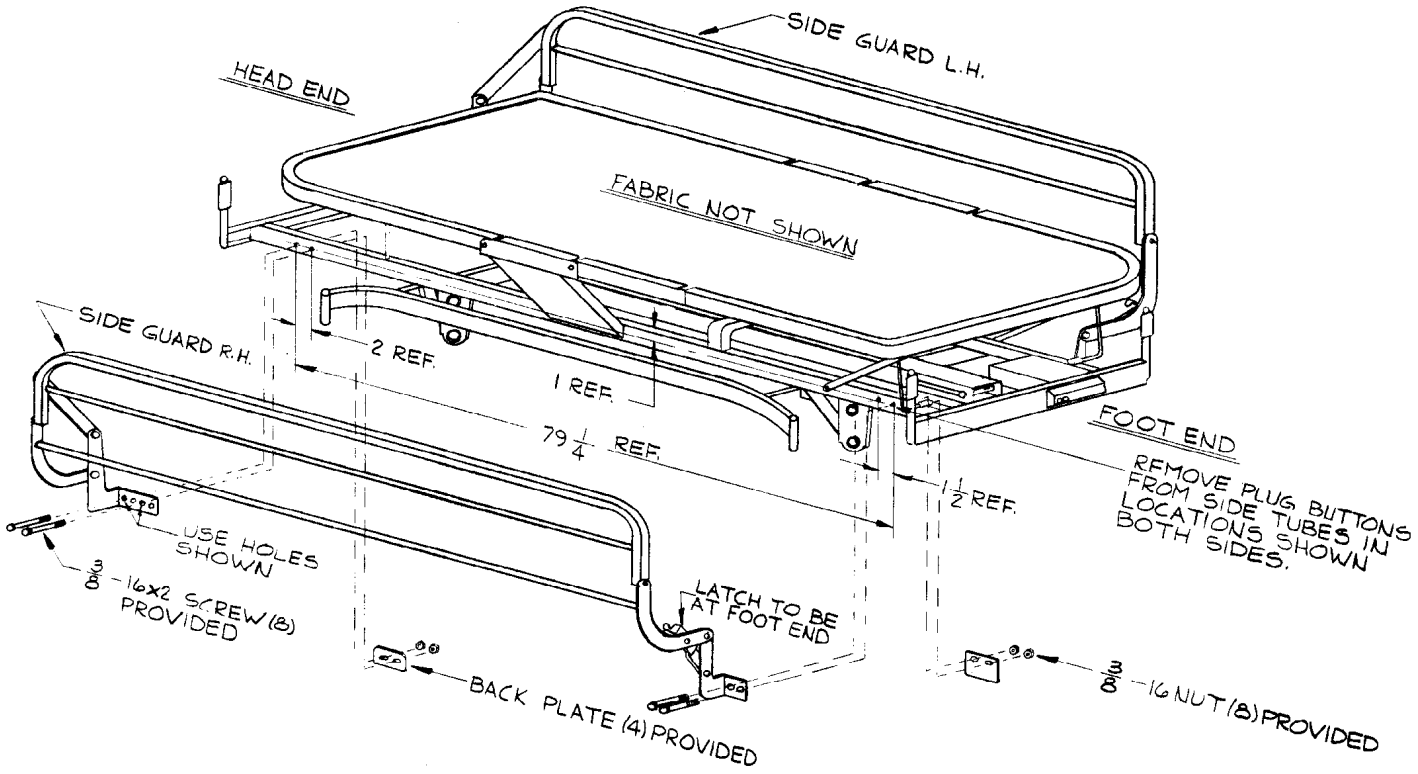
3/4 LENGTH SIDEGUARDS
MODEL 332



SIDEGUARD ASSEMBLY INSTRUCTIONS - 333 FULL LENGTH

1. Rotate the arms and the mounting brackets of the sideguards into the "up" position as shown in the diagram below.
2. Remove the plug buttons from the side tubes of the bed in the locations where the mounting brackets of the sideguards will mount. See the diagram below.
3. Place the sideguard mounting brackets against the side tube of the bed. Line up the holes and insert the four bolts through the mounting bracket and the side tube. Assemble the two back plates onto the protruding bolts on the inside of the side tube and secure the sideguard with four 3/8-16 locknuts as shown in the diagram below.
4. Repeat the procedure for the other sideguard.

FULL LENGTH SIDEGUARDS
MODEL 333



MOTOR - GENERAL INFORMATION

The head and knee motors on the 835 bed are identical which means they are also interchangeable. The hilow motor, however, is a different type and must not be used in place of a head or knee motor. Caution: Motors are not grounded.

All three motors are wired standard polarity.

HEAD AND KNEE MOTOR LIMITS

The head and knee drive units on the 835 bed are equipped with a slip clutch mechanism making it unnecessary to have electrical limits on the motors.

THERMALS

The head, knee and hilow motors on the 835 bed are all equipped with automatic thermal resets. If a motor shutts off from overheating it will automatically reset itself for operation after it cools down.

CHECKING FOR WEAK CAPACITORS

Usually, motor capacitors become weak before they fail. A quick check to find if they are weak is to:

1. Run the motor up. Depress the down button, let off the controls and see if the motor drifts after the controls are released.

2. While operating the motor in either direction, reverse the direction quickly and see if there is an unusually long delay before the motor reverses.

3. While operating the motor in either direction, reverse the direction quickly. The motor does not reverse but keeps on going in the original direction.

If any of the above conditions occur, replace the capacitor.

MOTOR PARTS LIST

When ordering parts for motors, the motor model must be specified. Following is a list of available parts for the three motors.

TYPE	MFG.	MFG. MODEL #	GEARS	CAPACITOR
Hilow	Molon	EM5R-183-1	SA4206	27686
	Gearmaster	K37MYC123157	SA3343	27686
	Gearmaster	K37MYC223295	SA3344	27686
	Gearmaster	K37MYC223296	SA3344	27686
Head or Knee	Molon	EM5R-83-1A	SA4205	30121
	Molon	EM5R-80-1	SA3345	30120
	Paterson	5KCP10HG232X	SA3349	30120
	Gearmaster	K37MYC223057	SA3348	30120
	Gearmaster	K37MYC223331	SA3348	30121
	Gearmaster	K37MYC223332	SA4118	30121

MANUAL OPERATION OF BED - (WHEN ELECTRIC POWER NOT AVAILABLE)

Head, Knee and Hilow Function

1. Pull the bed away from the wall.
2. Remove the bed end.
3. Make certain the main power cord is unplugged.
4. Extend the I.V. rod and insert the rod into the desired elevating screw from the head end of the bed.
5. Crank the I.V. rod "A: to raise or lower the head, knee or hilow. (see diagram "A")
6. "B" head, "C" hilow, "D" knee (see diagram "B")
7. IMPORTANT NOTE: Remove the I.V. rod before the main power cord is plugged in.

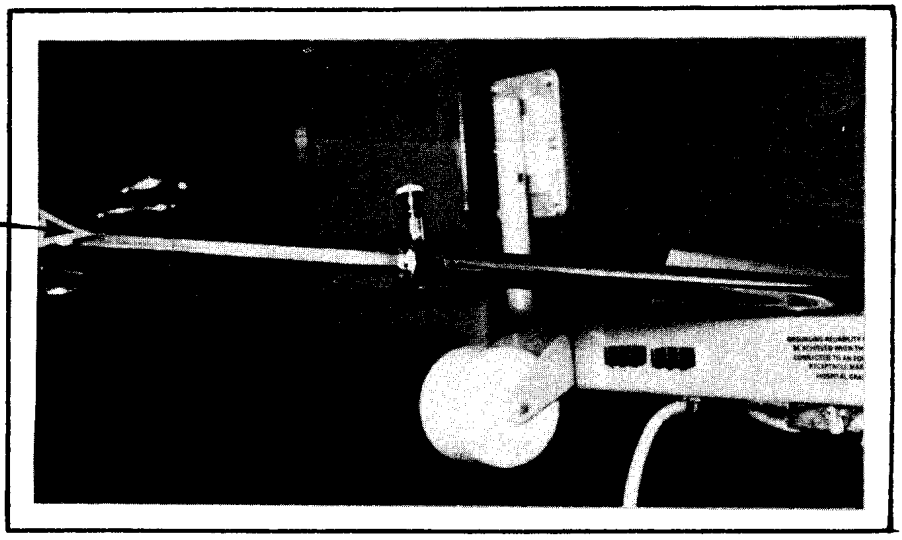


DIAGRAM "A"

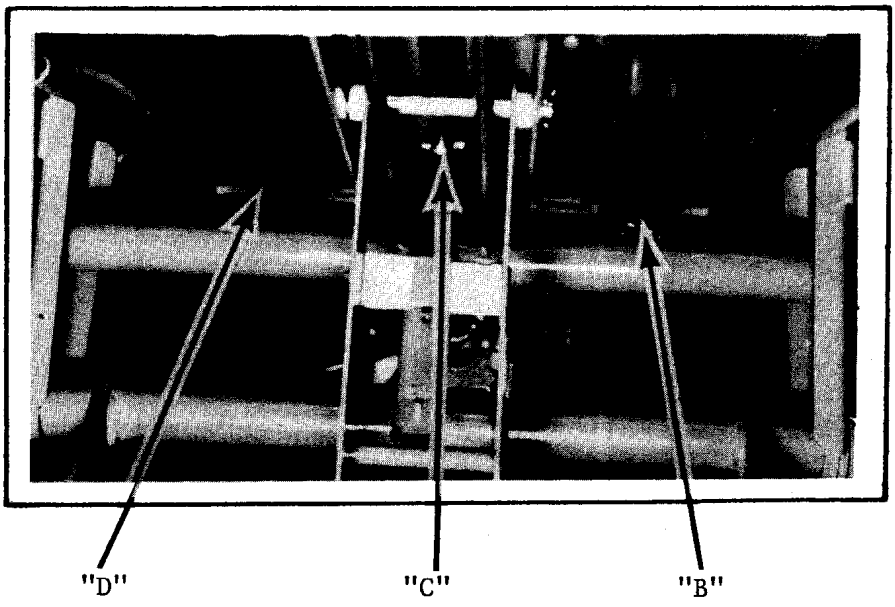


DIAGRAM "B"

SIDEGUARD CONSTRUCTION

Hill-Rom's half-length sideguard frames are of welded construction so individual welded parts on the welded assembly are not offered as replacements.

SIDEGUARD CABLE ASSEMBLIES

The sideguard cables of the individual sideguards run from the sideguards and plug into a connector at either side of the bed located near the seat section. The two connectors create a parallel connection from one sideguard to another and then a series connection to the printed circuit board.

SIDEGUARDS - HEAD END - HOW THEY WORK MECHANICALLY

Head end sideguards rotate towards the head end of the bed and should lock in the "up" position. There should be a certain amount of "play" in the mechanism. By depressing the "push" button, you can rotate the sideguard down until it stops at what we call the "intermediate stop". By depressing the button again, you can rotate the sideguard to the extreme "down" position. When the sideguard is completely down and only when it is completely down, you can slide the sideguard under the bed frame where it is conveniently stored away when going through narrow doorways, etc.

SIDEGUARDS - FOOT END - HOW THEY WORK MECHANICALLY

Foot end sideguards rotate towards the foot end of the bed and should lock in the "up" position. There should be a certain amount of "play" in the mechanism. By depressing the "push" button, you can rotate the sideguard all the way to the extreme "down" position. When the sideguard is completely down, and only when it is completely down, you can slide the sideguard under the bed frame where it is conveniently stored away when going through narrow doorways, etc.

SIDEGUARD REMOVAL

1. Raise the head section of the bed. (If no power is available see "MANUAL OPERATION OF BED")
2. Unplug the sideguard from the bed.
3. Remove one screw from the ground strap. (see diagram "A")
4. Remove two screws through the bed frame. (see diagram "B")
5. Reverse the procedure to reattach the sideguard to the bed.

(continued on the following page)

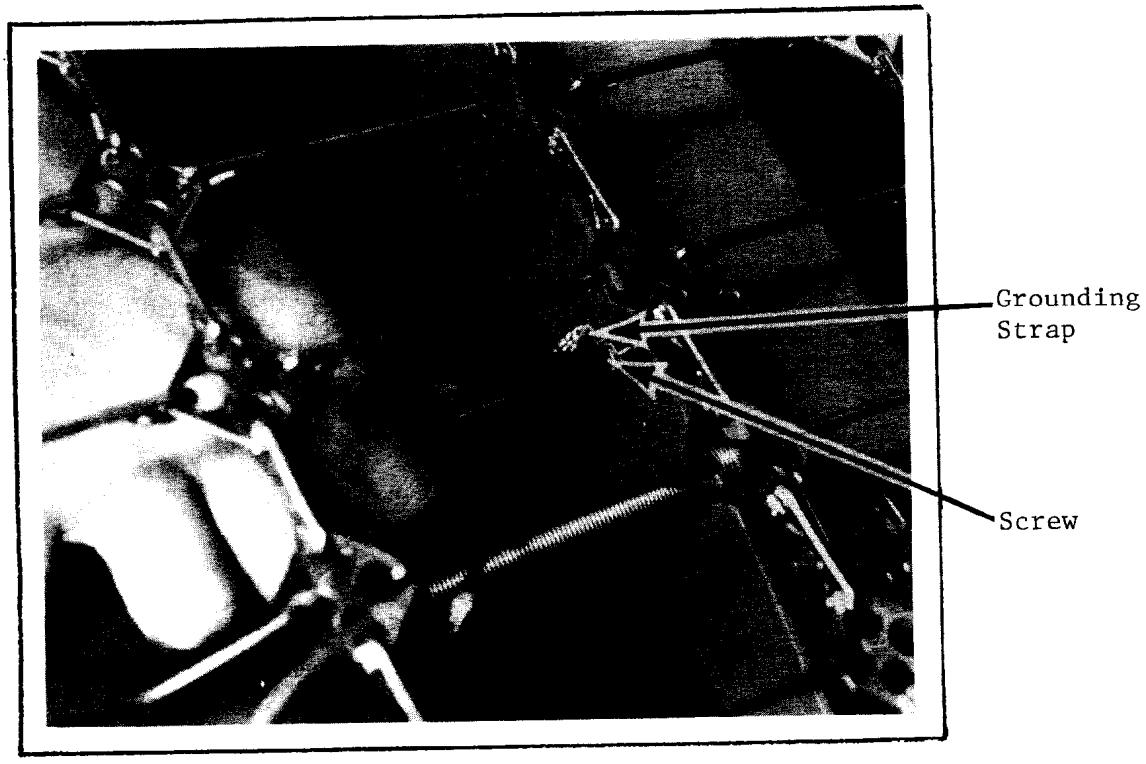


DIAGRAM "A"

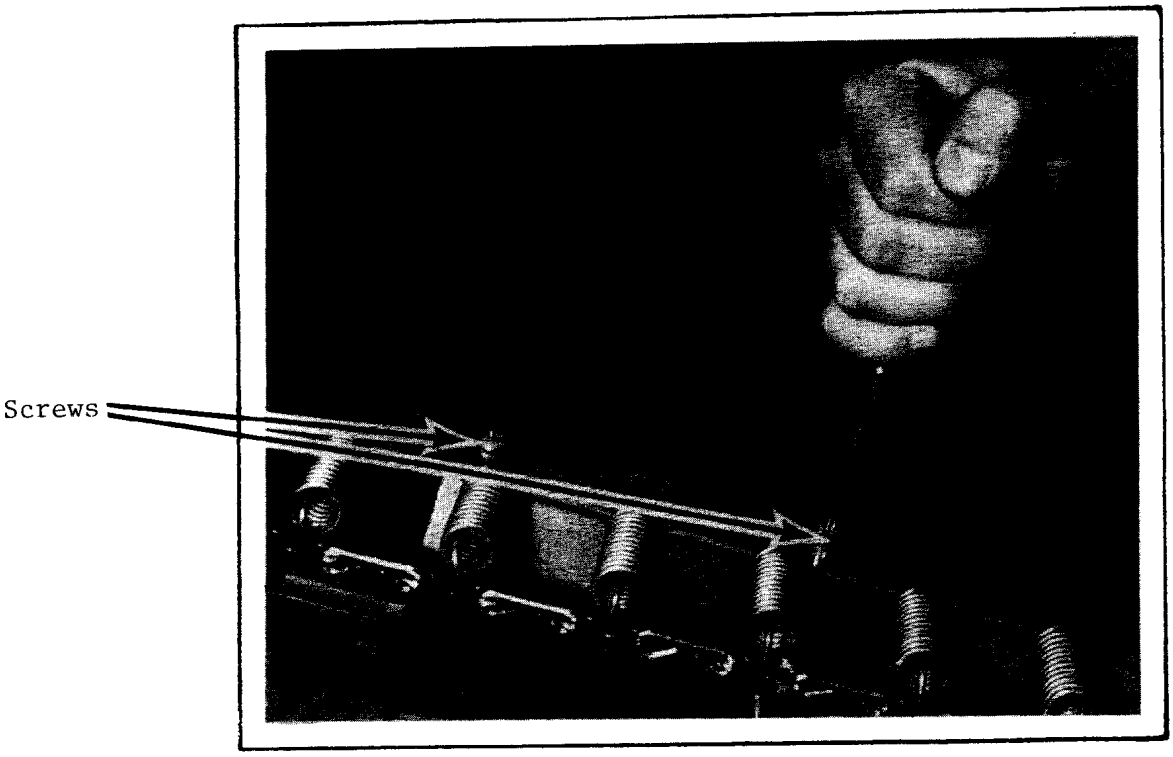


DIAGRAM "B"

SIDEGUARDS - NOT LOCKING IN UP POSITION

1. Raise the head section to the extreme "up" position.
2. Locate the stop tab. (see diagram "A")
3. Drive the tab up enough to allow the stop block to drop into the notch. (see diagram "B")
4. Lubricate the sideguard mechanism. (see "LUBRICATION REQUIREMENTS")

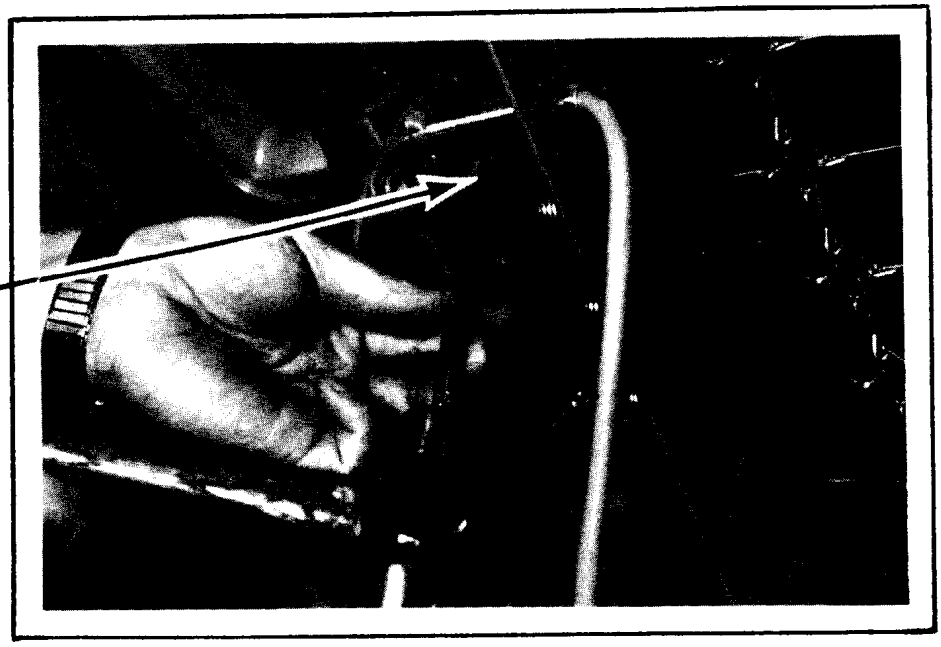


DIAGRAM "A"

SIDEGUARDS - HARD TO ROTATE UP OR DOWN

1. Raise the head section to the extreme "up position.
2. Using a cresent wrench, straighten the strap. (see diagram "B")
3. Make sure the slide rods (black), are parallel.
4. Clean and lubricate.

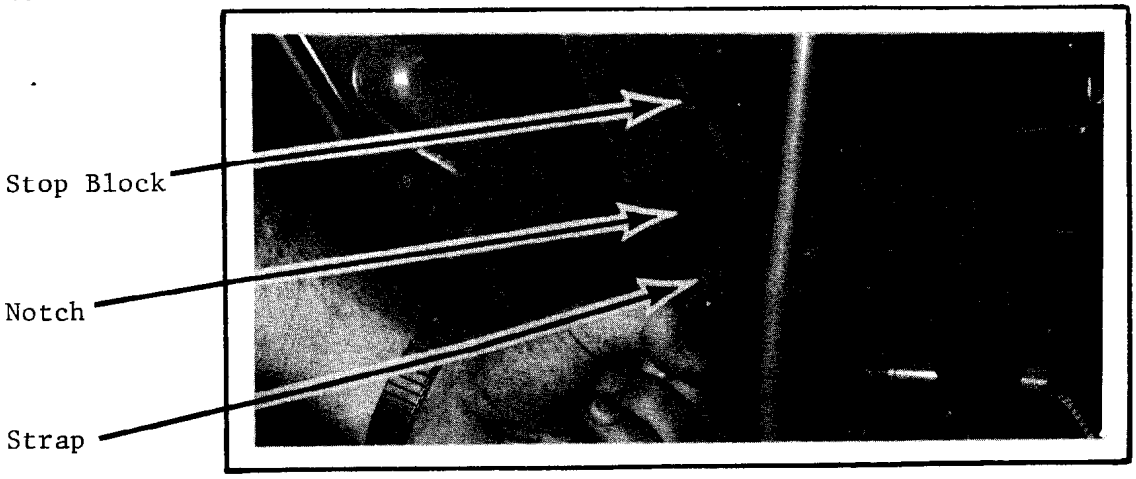


DIAGRAM "B"

SIDEGUARDS - SWITCH REMOVAL AND REPLACEMENT

1. Remove four (4) screws and lift the top cane cover off the framework beginning at the joint. (see diagram "A")
2. Now remove the end cane cover and two (2) screws. (see diagram "B")
3. Using a rubber mallet, gently drive the switch housing out of the sideguard framework until it is held only by the electrical cable. (see diagram "C")
4. Drive the steel "U" bracket out of the plastic switch housing with a hammer. (see diagram "D") Now you can see the clear plastic cover, switch holder and the switches underneath.

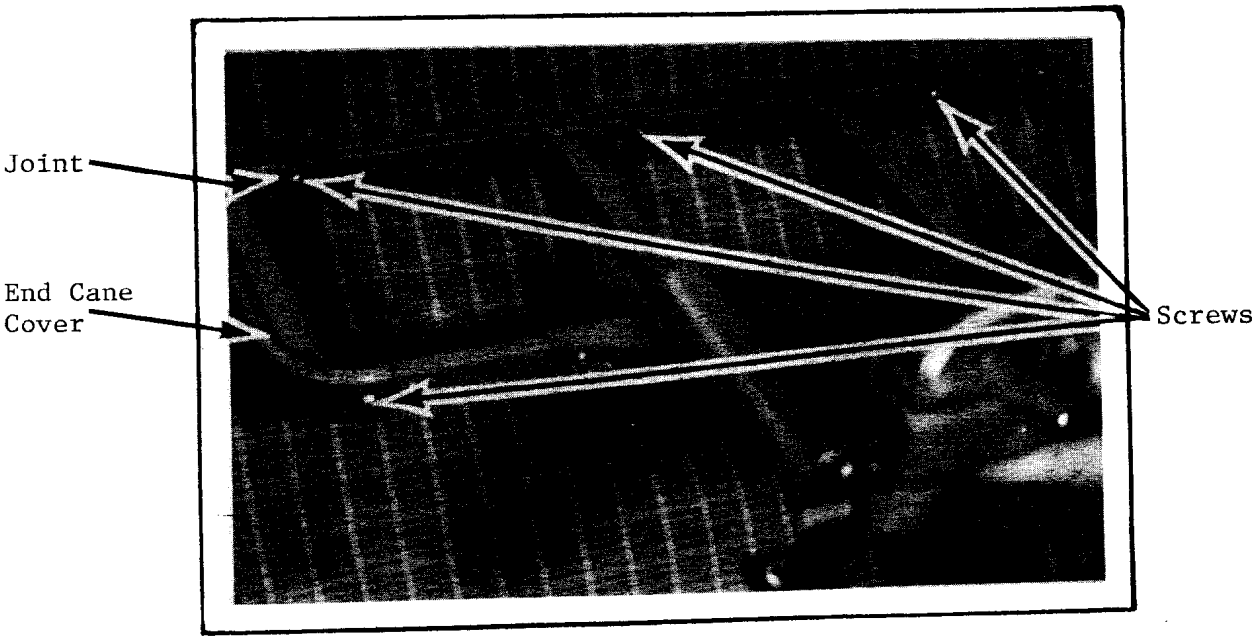


DIAGRAM "A"

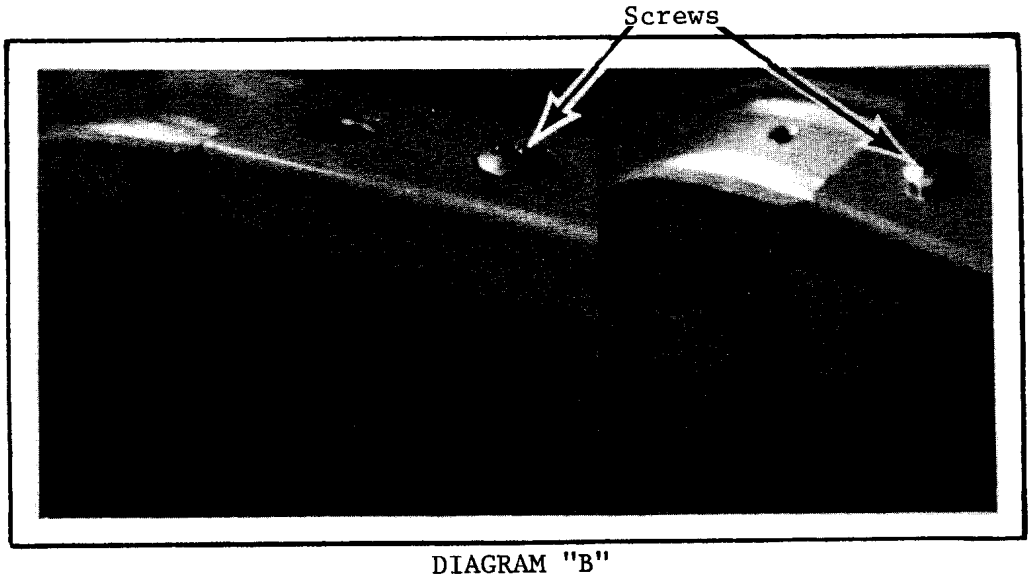


DIAGRAM "B"

(continued on the following page)

5. Remove the two (2) screws holding the clear cover on and lay them and the cover aside.

6. Now remove the center screw that holds the grounding bracket and the switch mounting bracket in place. (see diagram "E")

7. Remove the switch mounting bracket and switches out of the housing being careful to note the location of the switches and the routing of the wires.

8. To replace the damaged switch, lay both the new switch and the damaged one end to end on the sideguard tube and lightly clamp them in place making sure they are orientated the same before doing so. (see diagram "F")

9. Find the ground wire and it's solder pad on the damaged switch. (It's the one that goes to the grounding bracket.)

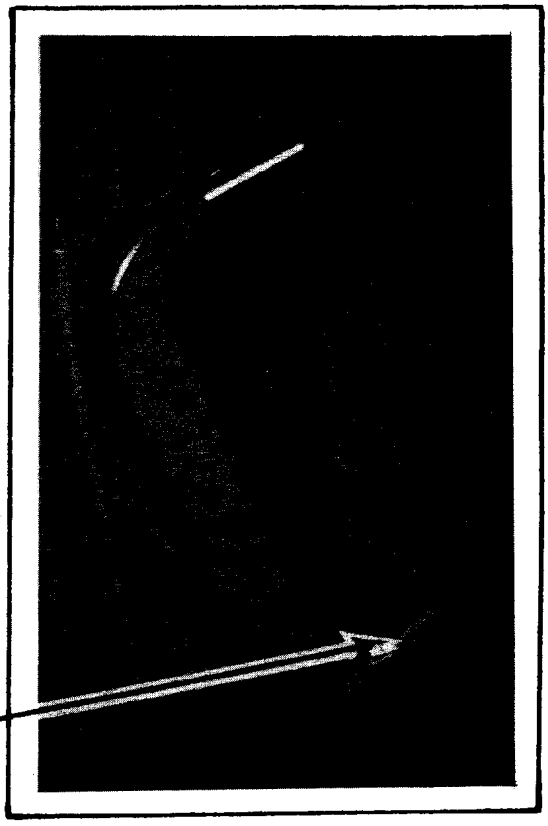


DIAGRAM "C"

DIAGRAM "D"

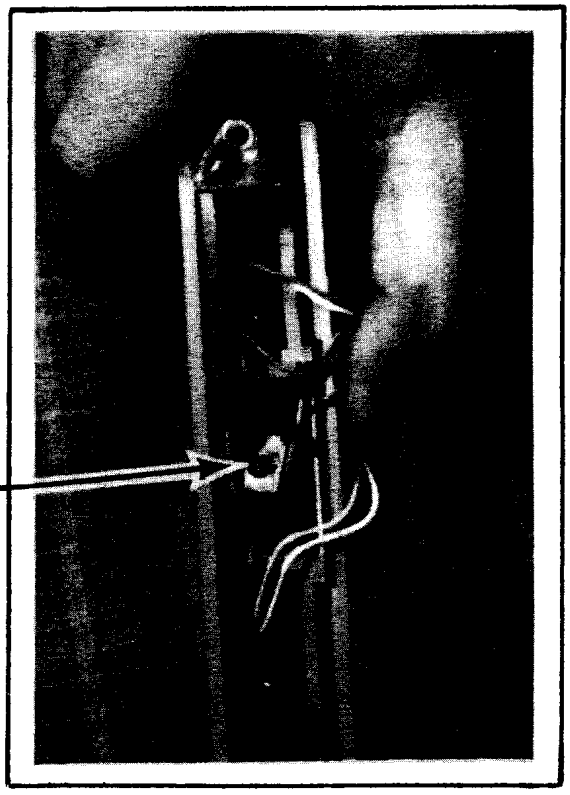


DIAGRAM "E"

(continued on the following page)

10. Pre-tin the corresponding solder pad on the replacement switch with a generous drop of 50/50 lead tin, rosin core solder using a maximum 30 watt solder iron.

11. Using a needle nose pliers and the solder iron, heat the old solder joint and transfer the ground wire over to the replacement switch.

12. For the remaining three (3) wires, clip them off of the damaged switch leaving enough wire from the cable to mate up with the corresponding wire on the replacement switch.

13. Strip the insulation back 3/16", insert the wire into the splice terminal of the corresponding colored wire and crimp.

14. When reassembling switches in the housing, do not try to insert all three switches at once. Place the head and knee switches in their positions and replace the switch holder and grounding bracket and secure with screws.

15. To insert the hilow switch, pry the switch housing apart enough to slide the switch into place. (see diagram "G")

16. Reassemble additional parts in reverse order that they were taken apart.

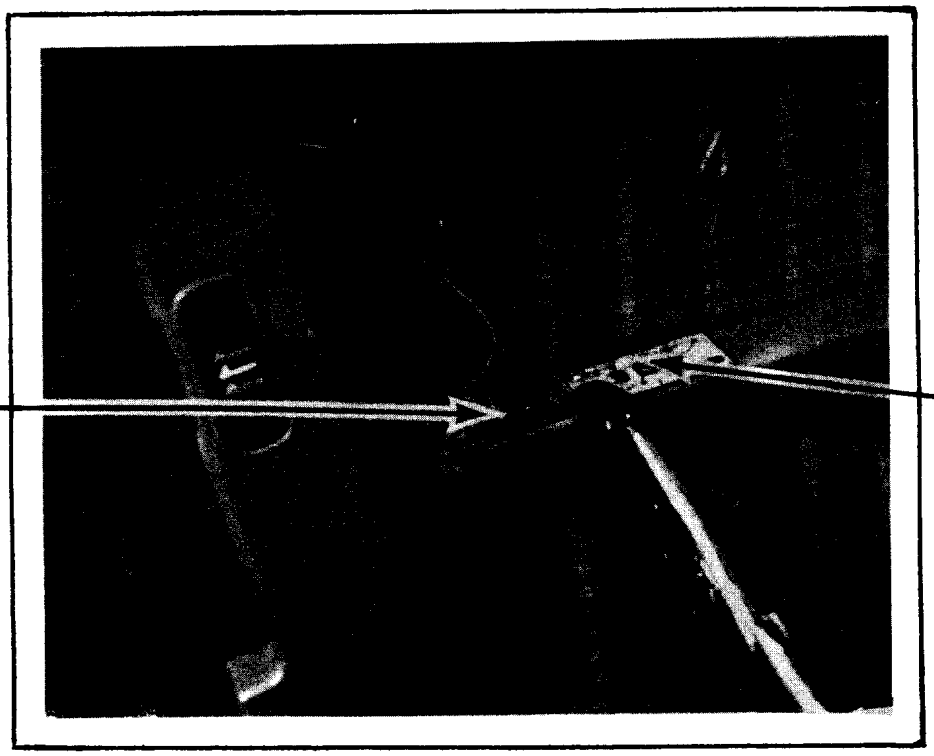


DIAGRAM "F"

(continued on the following page)

10. Pre-tin the corresponding solder pad on the replacement switch with a generous drop of 50/50 lead tin, rosin core solder using a maximum 30 watt solder iron.

11. Using a needle nose pliers and the solder iron, heat the old solder joint and transfer the ground wire over to the replacement switch.

12. For the remaining three (3) wires, clip them off of the damaged switch leaving enough wire from the cable to mate up with the corresponding wire on the replacement switch.

13. Strip the insulation back 3/16", insert the wire into the splice terminal of the corresponding colored wire and crimp.

14. When reassembling switches in the housing, do not try to insert all three switches at once. Place the head and knee switches in their positions and replace the switch holder and grounding bracket and secure with screws.

15. To insert the hilow switch, pry the switch housing apart enough to slide the switch into place. (see diagram "G")

16. Reassemble additional parts in reverse order that they were taken apart.

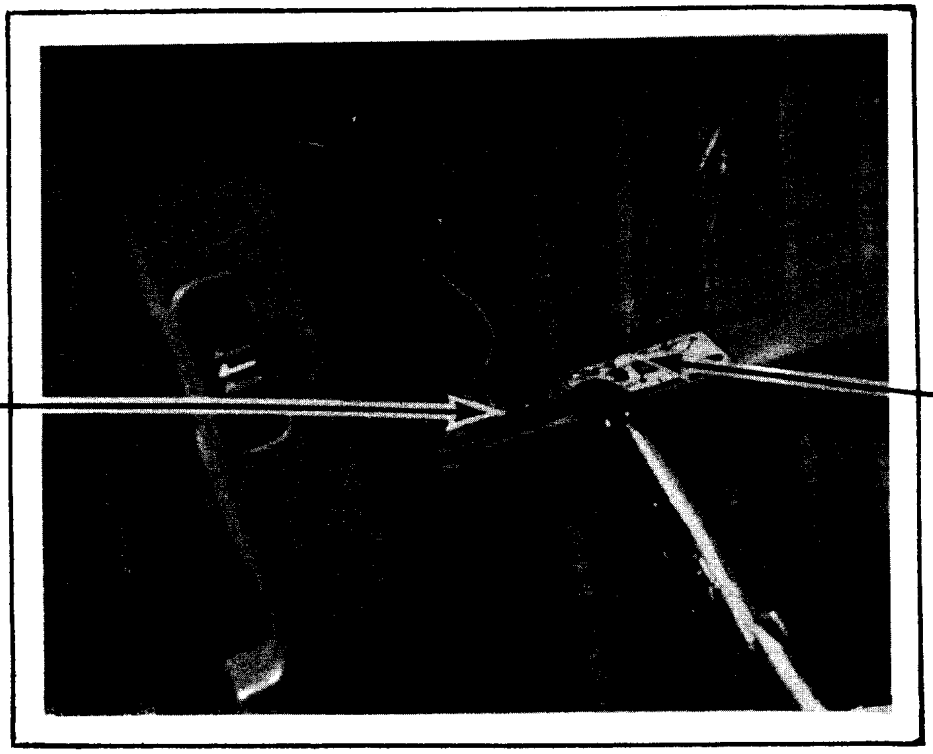


DIAGRAM "F"

(continued on the following page)

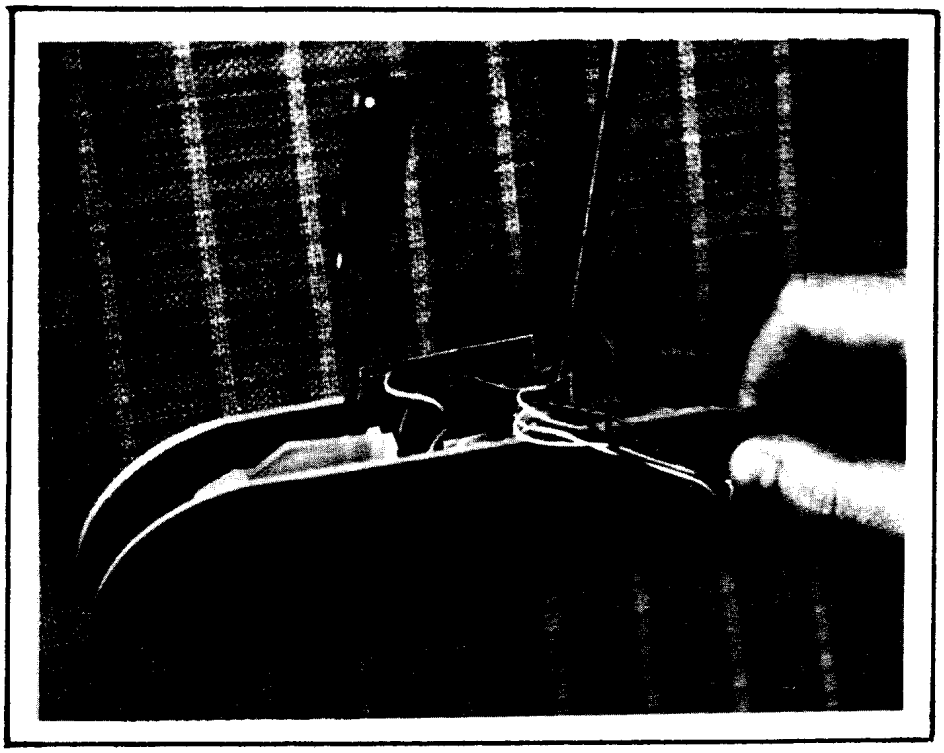


DIAGRAM "G"

P.C. BOARD - THEORY OF OPERATION

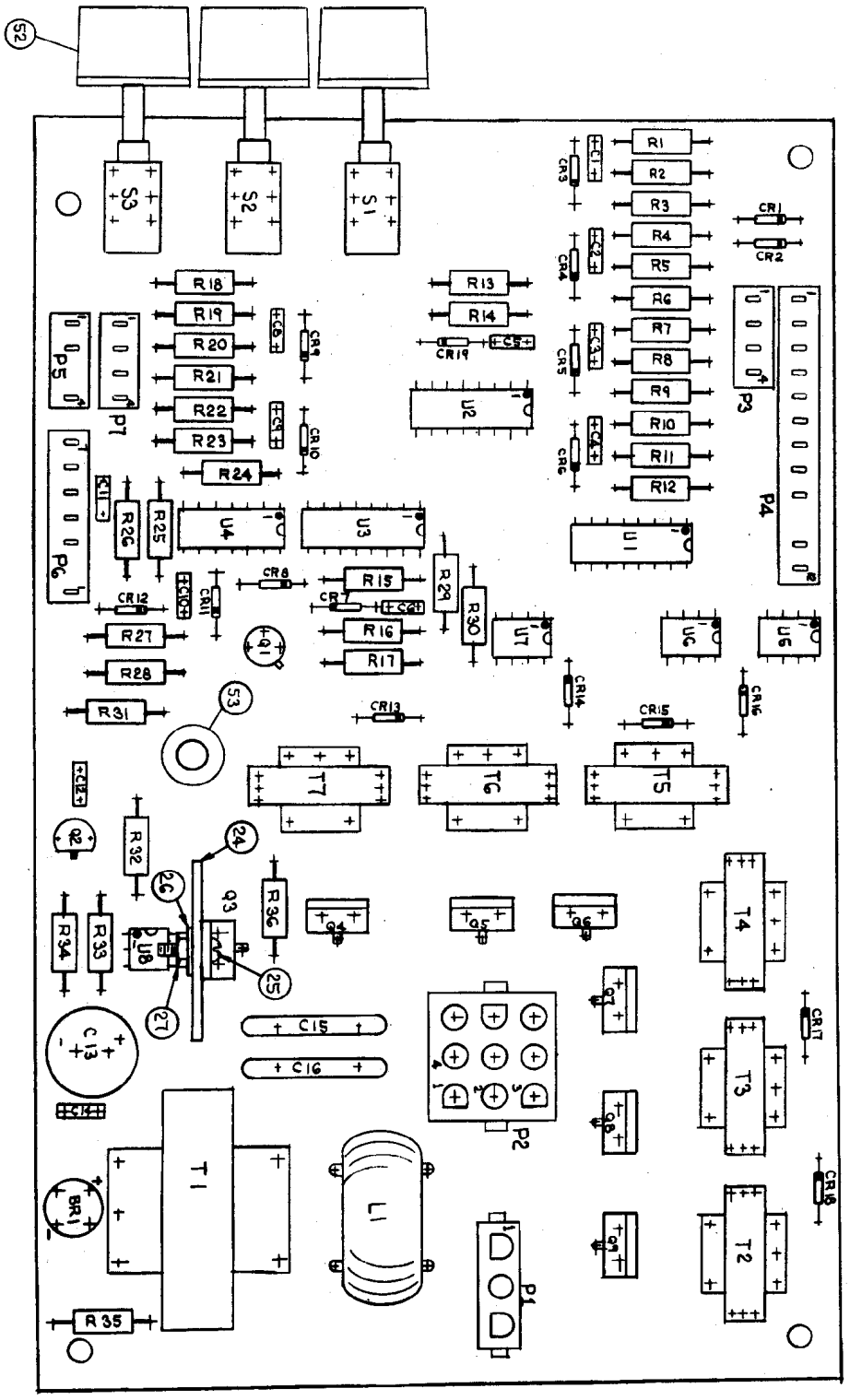
The Theory of Operation is a description of the Master Control board assembly which drives limit switches, sideguard, nurse panel and trendelenburg function.

It is helpful as a guide to understanding the Master Control Board and as an aid in troubleshooting problems encountered with electrical function of controls.

A copy of the Theory of Operation for the Centra Bed is available upon request to the Hill-Rom Customer Service Department. Please specify circuit board part number.

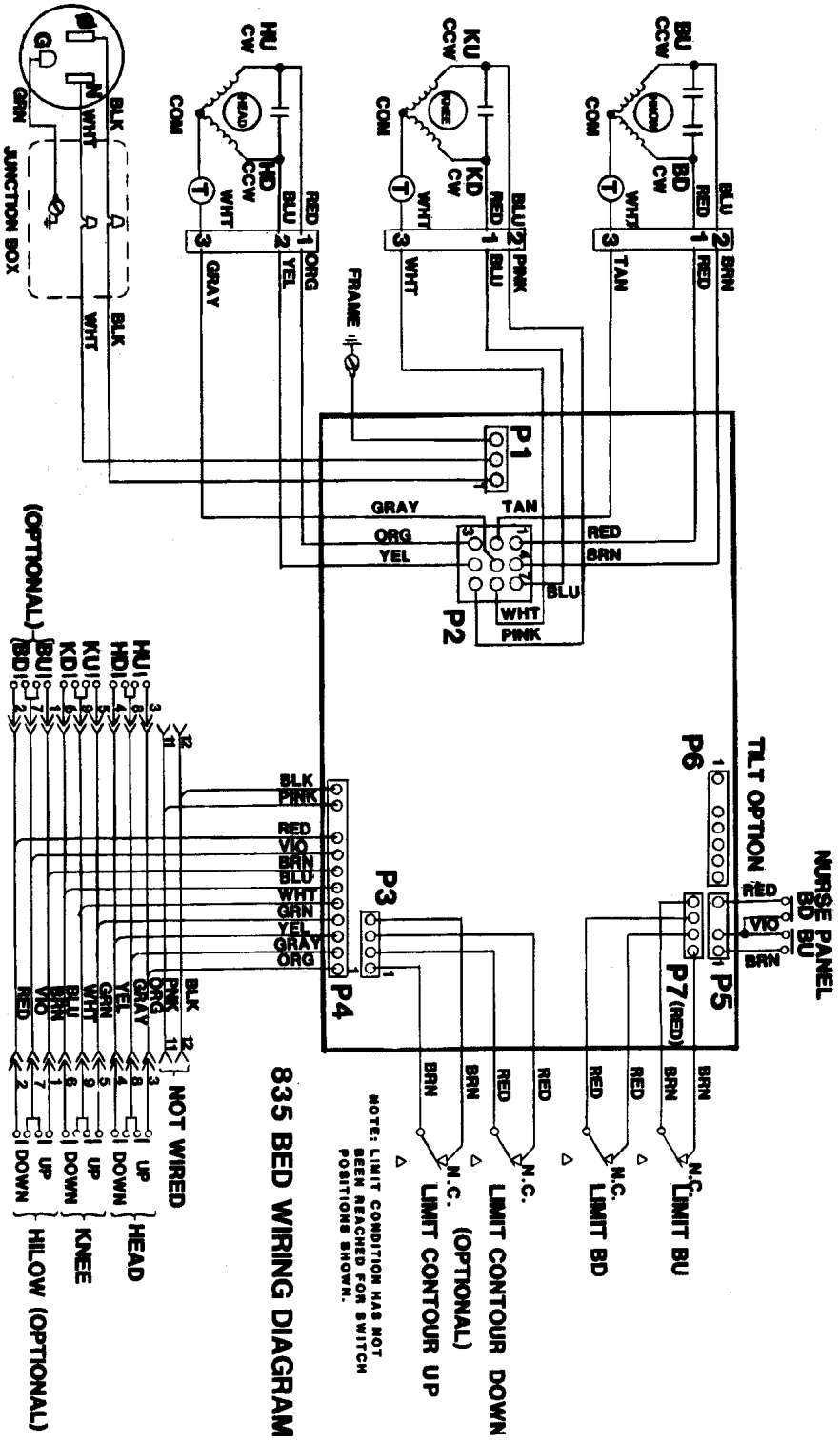
(Continued on the following page)

P.C. BOARD - COMPONENT LAYOUT - OLD STYLE BOARD P/N 32642



P.C. BOARD - WIRING DIAGRAM FOR SWITCHES, MOTORS AND LIMITS

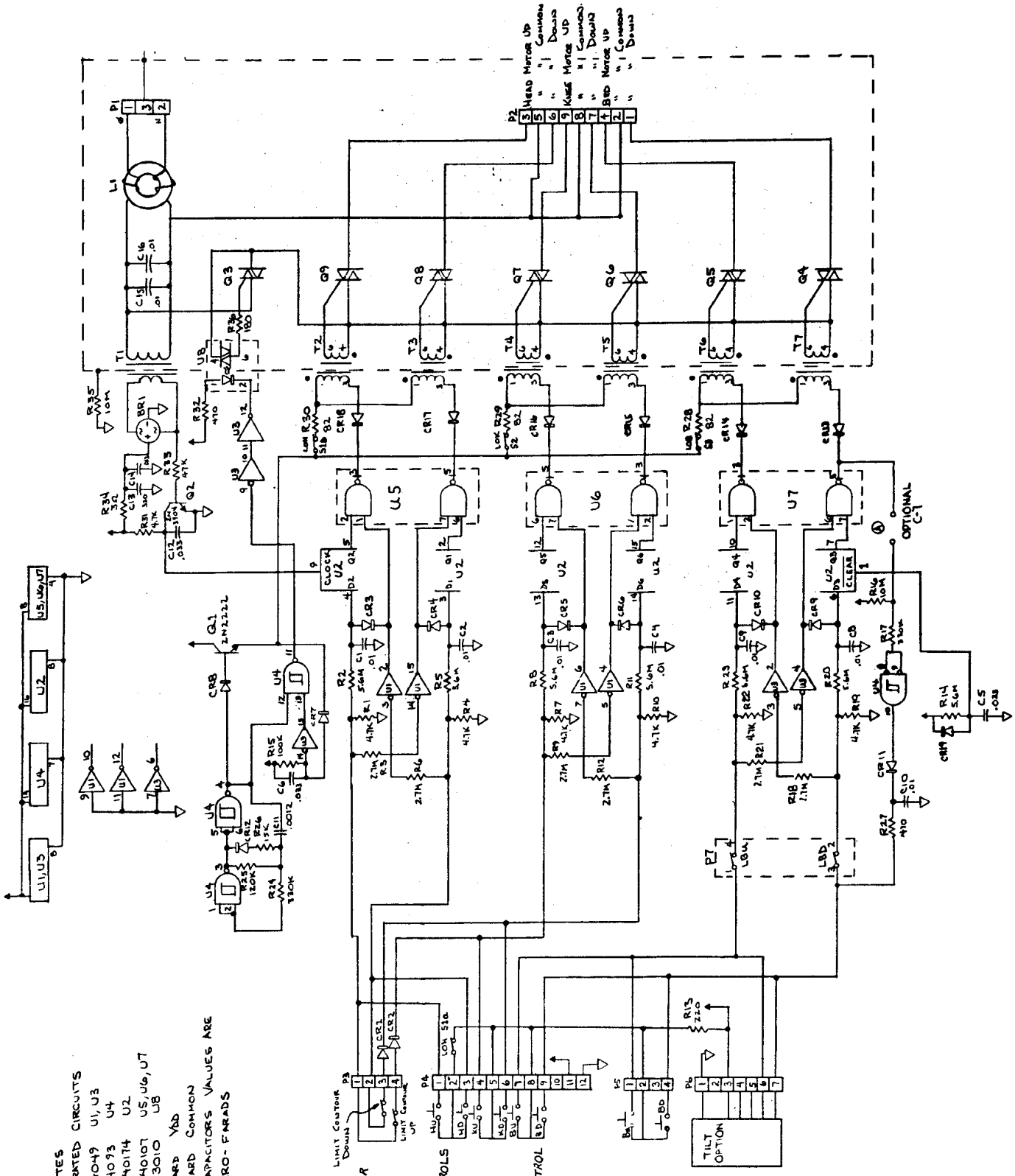
OLD STYLE BOARD P/N 32642



NOTE: The output voltage at the control switches varies from 10 to
With switches closed, there is 2-3mA current flowing through

P.C. BOARD - LOGIC SCHEMATIC - OLD STYLE BOARD P/N 32642

835 BED



P.C. BOARD - COMPONENT PARTS LIST - OLD STYLE BOARD P/N 32642

REFERENCE "P.C. BOARD - COMPONENT LAYOUT"

COMPONENT SYMBOL	DESCRIPTION	HILL-ROM PART NO.
R1, R4, R7, R10, R19, R22, R31	RESISTOR	30002-4721B
R2, R5, R8, R11, R14, R20, R23	RESISTOR	30002-5651B
R3, R6, R9, R12, R18, R21	RESISTOR	30002-2751B
R13	RESISTOR	30002-2211B
R15	RESISTOR	30002-1041B
R16, R35	RESISTOR	30002-1061B
R17, R24	RESISTOR	30002-3341B
R25	RESISTOR	30002-1241B
R26	RESISTOR	30002-1531B
R27, R32	RESISTOR	30002-4711B
R28, R29, R30	RESISTOR	30002-8201B
R33	RESISTOR	30002-4731B
R36	RESISTOR	30002-1811B
R34	RESISTOR	27316
C1, C2, C3, C4, C8, C9, C10	CAPACITOR	30101-103K
C5, C6, C12, C14	CAPACITOR	30101-333K
C11	CAPACITOR	30101-122K
C13	CAPACITOR	27313
C15, C16	CAPACITOR	30103
CR1 thru CR19	DIODE	32195-4
BR1	BRIDGE RECTIFIER	27314
Q1	TRANSFORMER	30310-2222A
Q2	TRANSISTOR	30300-3904A
**Q3	TRIAC	90003-01
**Q4, Q5, Q6, Q7, Q8, Q9	TRIAC	90003-02
U1, U3	INTEGRATED CIRCUIT	30410-4049B
U2	INTEGRATED CIRCUIT	30410-40174B
U4	INTEGRATED CIRCUIT	30400-4093B
U5, U6, U7	INTEGRATED CIRCUIT	30405-40107B
*U8	INTEGRATED CIRCUIT	30420-3010
*T1	TRANSFORMER	30600
*T2, T3, T4, T5, T6, T7	TRANSFORMER	30601
L1	TOROID ASSEMBLY	30610
24	HEAT SINK	31089
25	SCREW	31144
26	WASHER	31236
27	NUT	31145
28	TRIAC ASSEMBLY	35153
S1, S2, S3	SWITCH	30800-01B

(Continued on the following page)

COMPONENT SYMBOL	DESCRIPTION	HILL-ROM PART NO.
52	BUTTON	33006
P1	CONNECTOR	30905
P2	CONNECTOR	30906
P3	CONNECTOR	30900-04C
P4	CONNECTOR	30900-12C
P5	CONNECTOR	30900-04C
P6	CONNECTOR	30900-07C
P7	CONNECTOR	30900-04CR

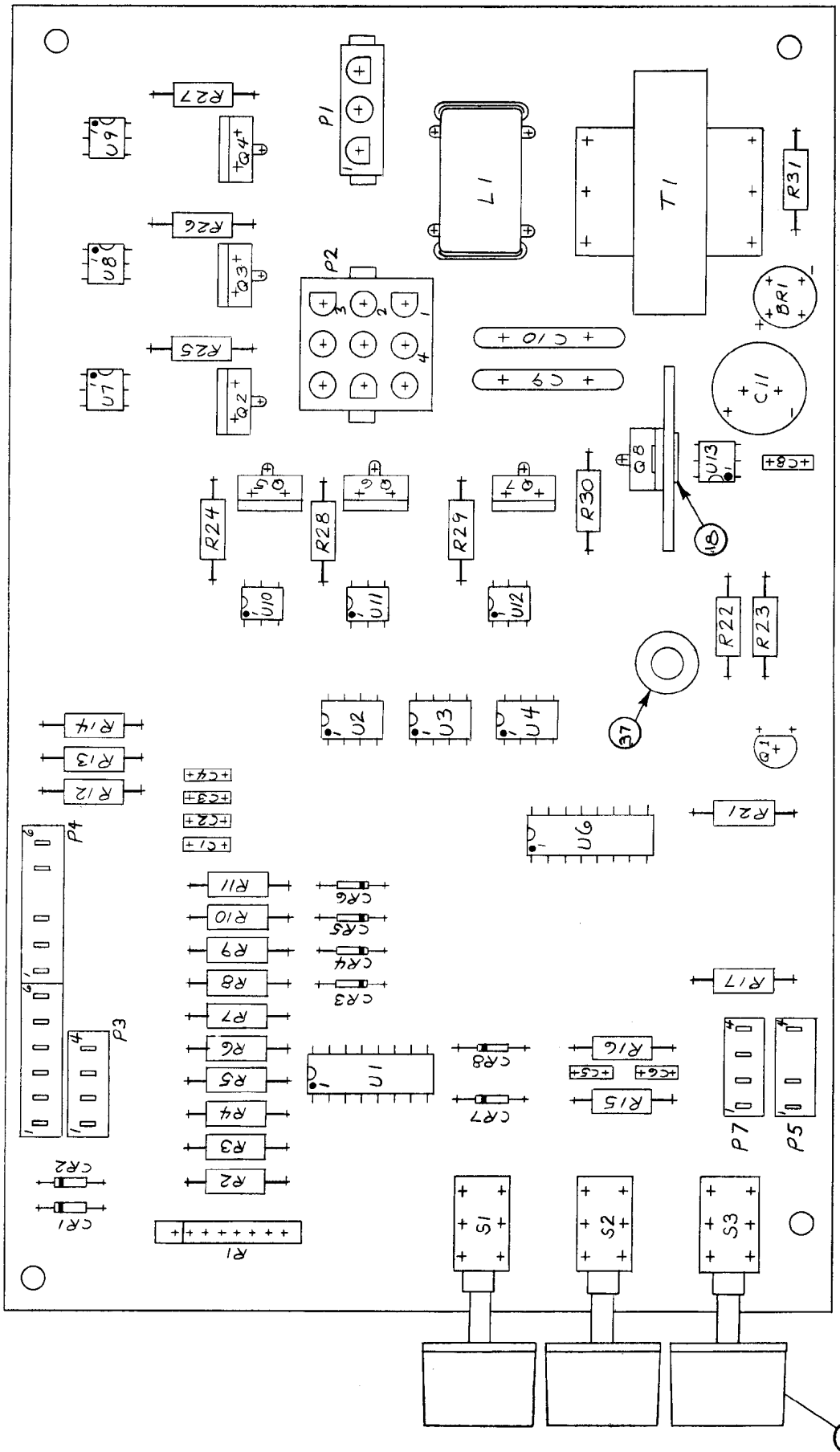
NOTES:

1. Components marked with an * must be purchased through Hill-Rom in order to maintain the UL listing on the bed.

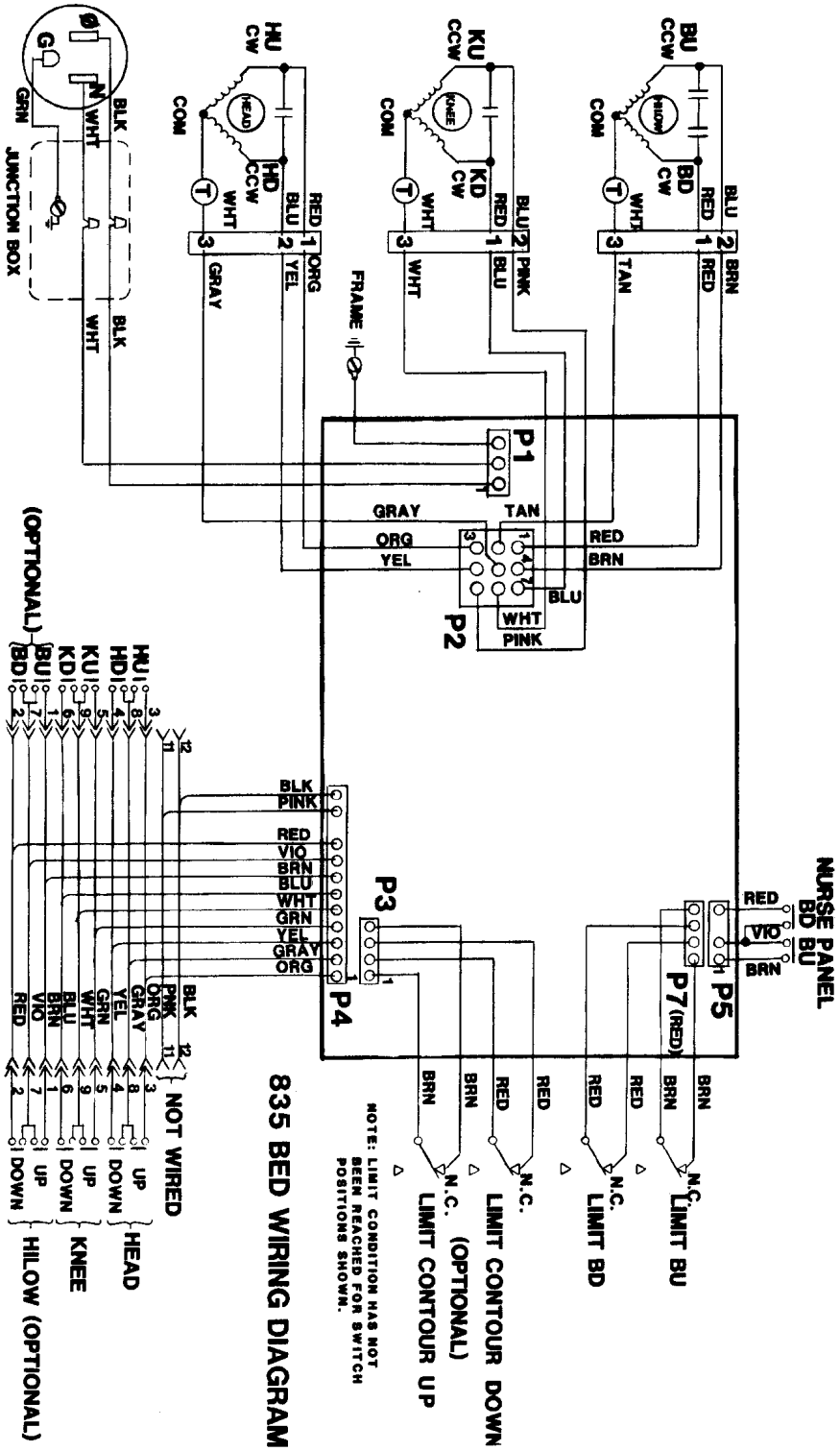
2. Components marked with two ** are specially made for Hill-Rom and must be replaced through Hill-Rom.

3. To insure equal quality in your P.C. Board replacement, components should always be of the same manufacturer and number as what was originally on the board.

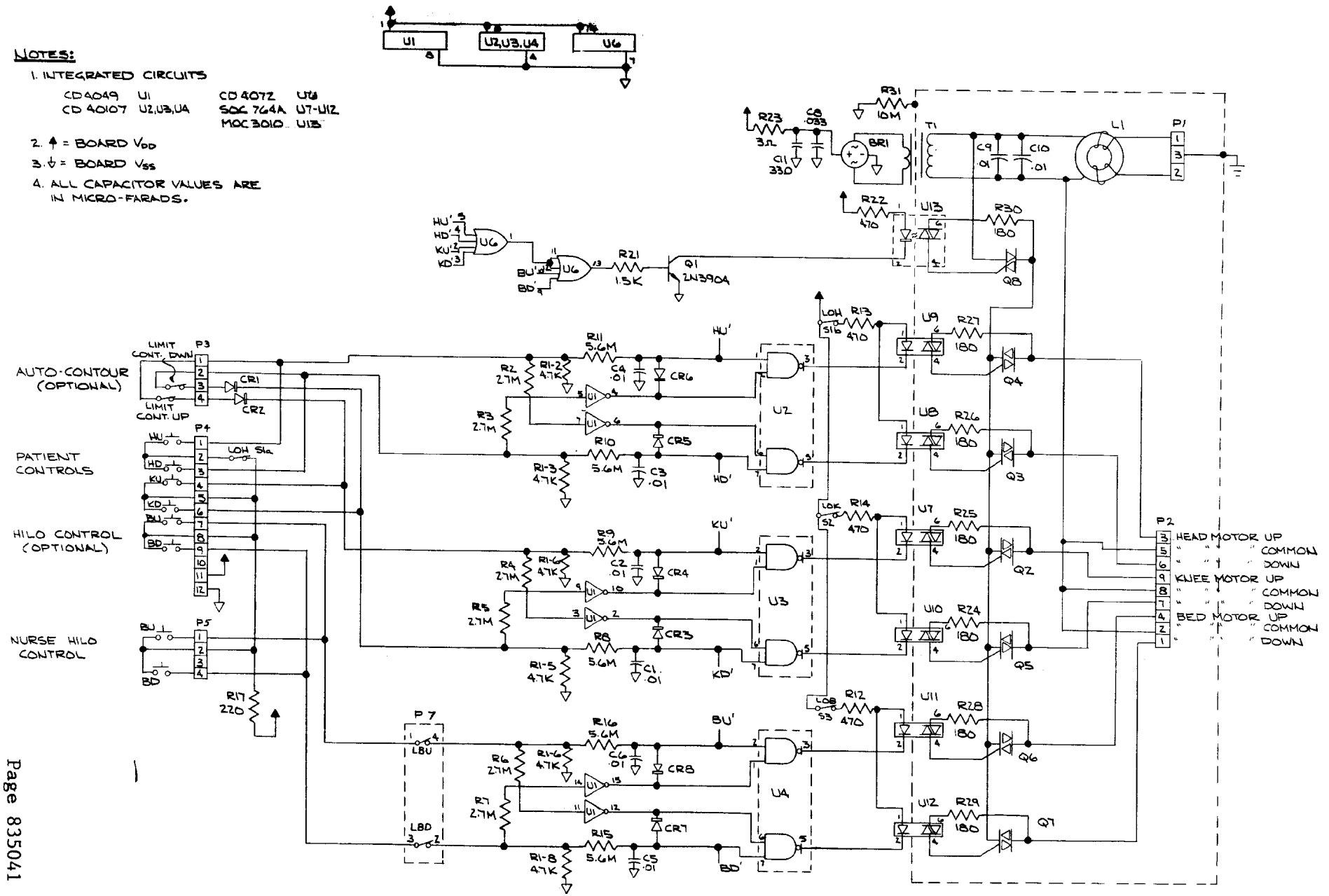
P.C. BOARD - COMPONENT LAYOUT - CIRCUIT BOARD P/N 35379



P.C. BOARD - WIRING DIAGRAM FOR SWITCHES, MOTORS AND LIMITS
CIRCUIT BOARD P/N 35379



NOTE: The output voltage at the control switches varies from 10 to 14 volts. With switches closed, there is 2-3mA current flowing through circuitry.



P.C. BOARD - LOGIC SCHEMATIC - CIRCUIT BOARD P/N 35379

Q8
Q7
Q6

P.C. BOARD - COMPONENT PARTS LIST - CIRCUIT BOARD P/N 35379

REFERENCE "P.C. BOARD - COMPONENT LAYOUT"

COMPONENT SYMBOL	DESCRIPTION	HILL-ROM PART NO.
R1	RESISTOR NETWORK	30010-472
R2 thru R7	RESISTOR	30007-2755B-8
R8 thru R11, R15, R16	RESISTOR	30007-5655B-8
R12 thru R14, R22	RESISTOR	30007-4715B-8
R17	RESISTOR	30007-2215B-8
R31	RESISTOR	30007-1065B-8
R21	RESISTOR	30007-1525B-8
R23	RESISTOR	26316-8
R24 thru R30	RESISTOR	30002-1811B-8
C1 thru C6	CAPACITOR	30101-103K-8
C8	CAPACITOR	30101-333K-8
C9, C10	CAPACITOR	30103
C11	CAPACITOR	27313-8
CR1 thru CR8	DIODE	30200-4148B-8
BR1	BRIDGE	27314-8
Q1	TRANSISTOR	30300-3904A-7
**Q2 thru Q7	TRIAC	90003-05
**Q8	TRIAC ASSEMBLY	36840
U1	INTEGRATED CIRCUIT	30410-4049B
U2 thru U4	INTEGRATED CIRCUIT	30405-40107B
U6	INTEGRATED CIRCUIT	30400-4072B
**U7 thru U12	INTEGRATED CIRCUIT	~~30421~~
*U13	INTEGRATED CIRCUIT	30420-3010
T1	TRANSFORMER	30602
L1	TORRID ASSEMBLY	30610
P1	CONNECTOR	30905
P2	CONNECTOR	30906
P3	CONNECTOR	30900-04C
P4	CONNECTOR	30900-06C
P5	CONNECTOR	30900-04C
P7	CONNECTOR	30900-04CR
S1 thru S3	SWITCH	30800-01B
36	BUTTON	33006

NOTES:

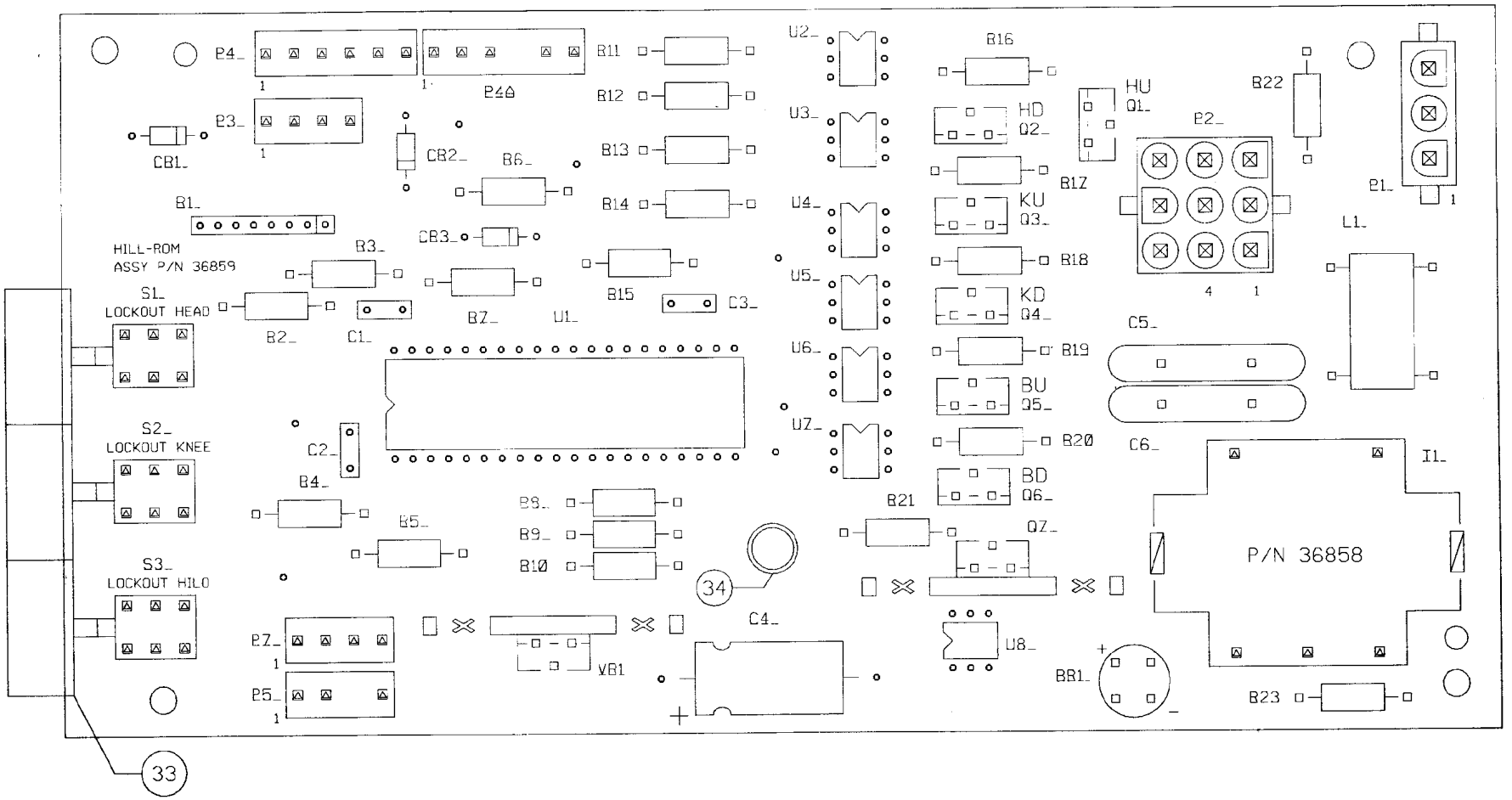
1. Components marked with an * must be purchased through Hill-Rom in order to maintain the UL listing on the bed.

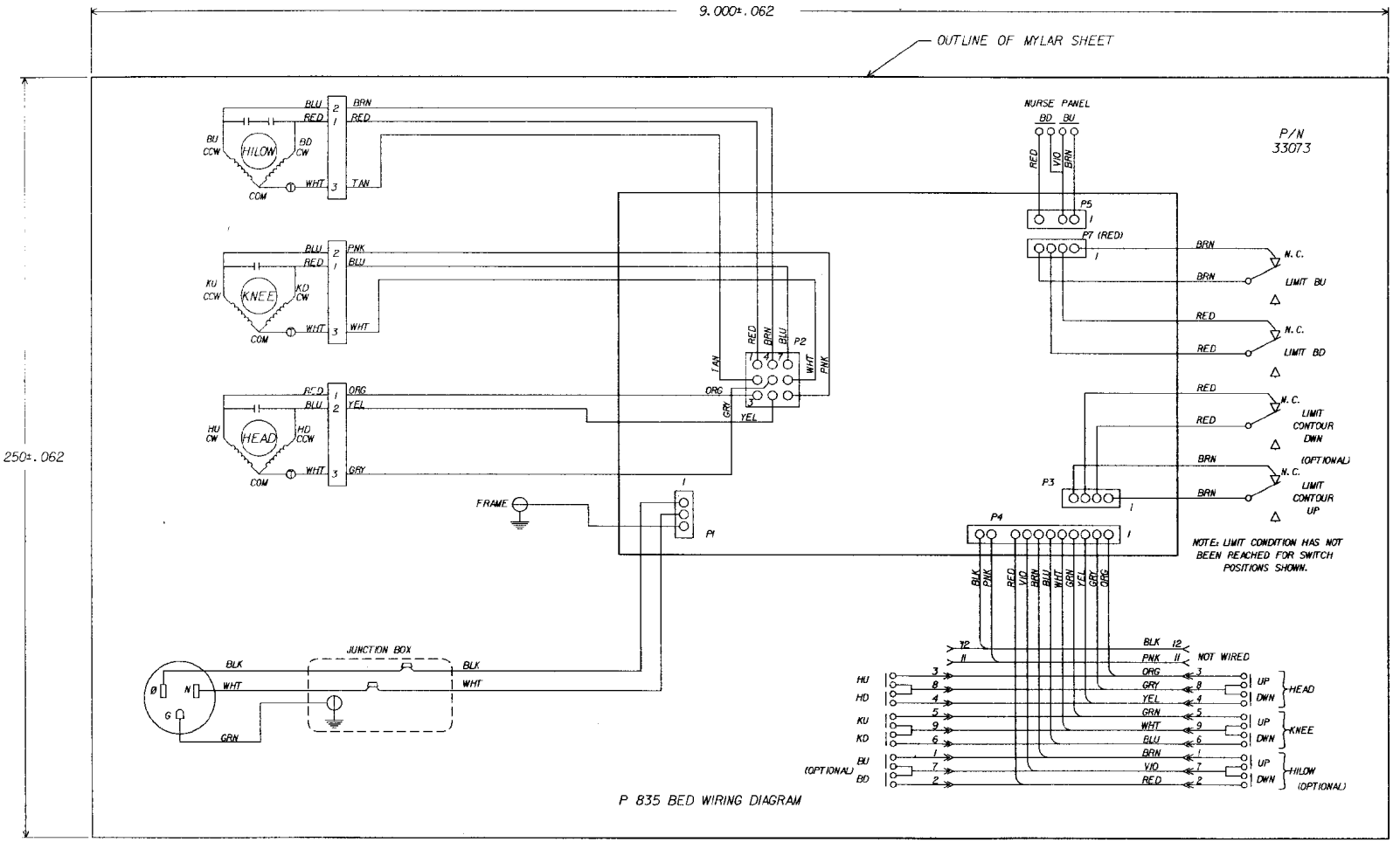
2. Components marked with two ** are specially made for Hill-Rom and must be replaced through Hill-Rom.

3. To insure equal quality in your P.C. Board replacement, components should always be of the same manufacturer and number as what was originally on the board.

(Continued on the following page)

P.C. BOARD - COMPONENT LAYOUT - ASIC BOARD P/N SA1279

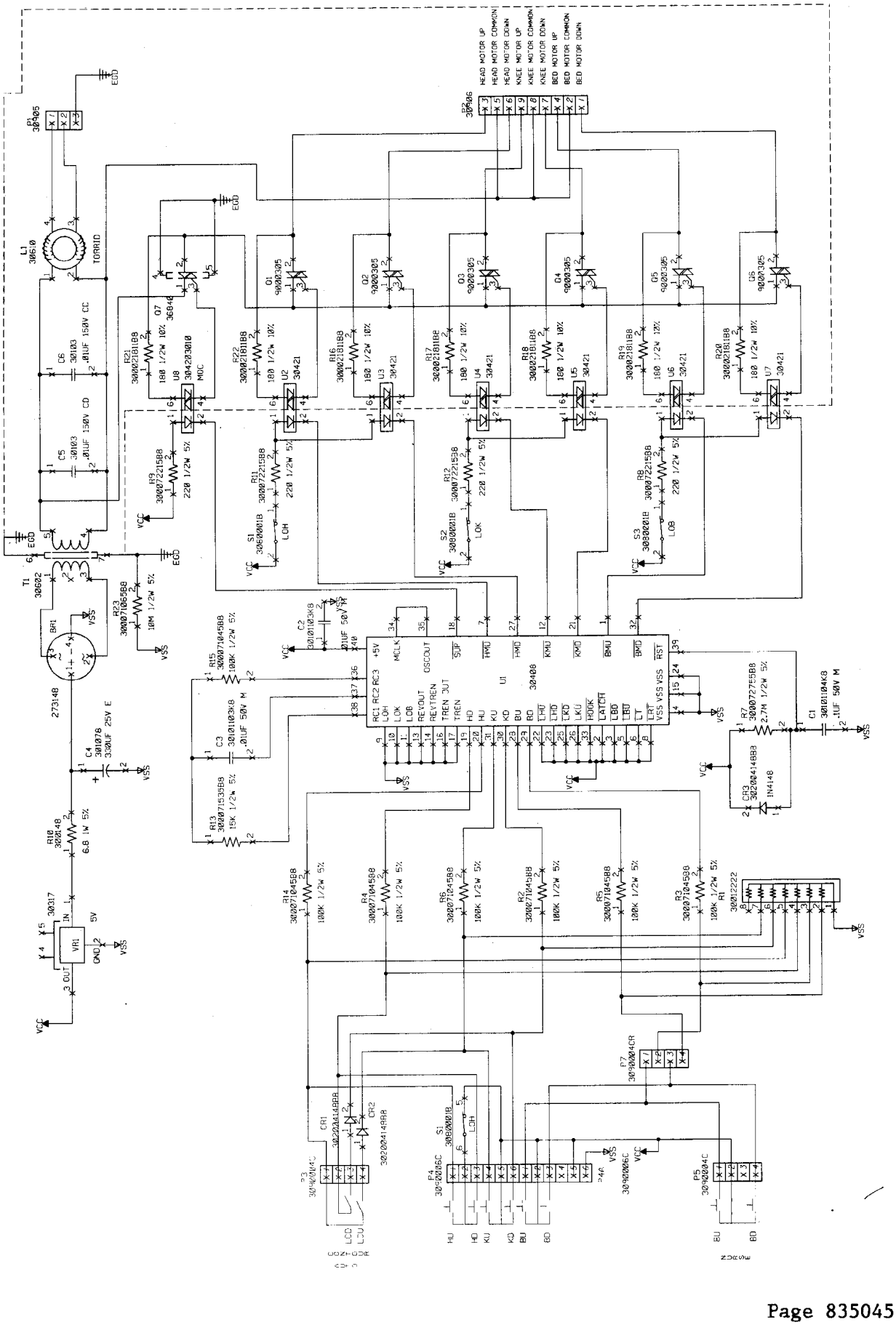




P 835 BED WIRING DIAGRAM

P.C. BOARD - WIRING DIAGRAM - ASIC BOARD P/N SA1279

P.C. BOARD - LOGIC SCHEMATIC - ASIC BOARD P/N SA1279



P.C. BOARD - COMPONENT PARTS LIST - ASIC BOARD P/N SA1279

REFERENCE "P.C. BOARD - COMPONENT LAYOUT"

COMPONENT SYMBOL	DESCRIPTION	HILL-ROM PART NO.
BR1	BRIDGE RECTIFIER	27314-8
C1	CAPACITOR	30101-104K8
C2, C3	CAPACITOR	30101-103K8
C4	CAPACITOR	30107-8
C5, C6	CAPACITOR	30103
CR1, CR2, CR3	DIODE	30200-4148B8
L1	TORRID	30610
P1	QUICK DISCONNECT	30905
P2	QUICK DISCONNECT	30906
P3, P5	POST	30900-04C
P4, P4A	POST	30900-06C
P7	POST	30900-04CR
**Q1, Q2, Q3, Q4, Q5, Q6	TRIAC	90003-05
**Q7	TRIAC ASSEMBLY	36840
R1	RESISTOR	30012-222
R2, R3, R4, R5, R6, R14, R15	RESISTOR	30007-1045B8
R16, R17, R18, R19, R20, R21, R22	RESISTOR	30002-1811B8
R23	RESISTOR	30007-1065B8
R13	RESISTOR	30007-1535B8
R8, R9, R11, R12	RESISTOR	30007-2215B8
R7	RESISTOR	30007-2755B8
R10	RESISTOR	30014-8
U1	INTEGRATED CIRCUIT-ASIC	30408
**U2, U3, U4, U5, U6, U7	INTEGRATED CIRCUIT	30421
*U8	INTEGRATED CIRCUIT	30420-3010
T1	TRANSFORMER	30602
VR1	REGULATOR ASSEMBLY-SV	30317
S1, S2, S3	LOCKOUT SWITCH-DPDT	30800-01B
33	BUTTON	33006

NOTES:

1. Components marked with an * must be purchased through Hill-Rom in order to maintain the UL listing on the bed.

2. Components marked with two ** are specially made for Hill-Rom and must be replaced through Hill-Rom.

3. To insure equal quality in your P.C. Board replacement, components should always be of the same manufacturer and number as what was originally on the board.

CONNECTORS AND TERMINALS - P.C. BOARD - OLD STYLE BOARD P/N 32642

BOARD LOCATION	BOARD CONNECTOR	MATING CONNECTOR	TERMINAL
P1	30905	30913	30950
P2	30906	30919	30950
P3	30900-04C	30910-04	29975
P4	30900-12C	30910-12	29975
P5	30900-04C	30910-04	29975
P6	30900-07C	NOT USED	NOT USED
P7	30900-04CR	30910-04R	29975

CONNECTORS AND TERMINALS - P.C. BOARD - CIRCUIT BOARD P/N 35379

BOARD LOCATION	BOARD CONNECTOR	MATING CONNECTOR	TERMINAL
P1	30905	30913	30950
P2	30906	30919	30950
P3	30900-04C	30910-04	29975
P4	30900-12C	30910-12	29975
P5	30900-04C	30910-04	29975
P7	30900-04CR	30910-04R	29975

CONNECTORS AND TERMINALS - P.C. BOARD - ASIC BOARD P/N SA1279

BOARD LOCATION	BOARD CONNECTOR	MATING CONNECTOR	TERMINAL
P1	30905	30913	30950
P2	30906	30919	30950
P3	30900-04C	30910-04	29975
P4	30900-12C	30910-12	29975
P5	30900-04C	30910-04	29975
P7	30900-04CR	30910-04R	29975

CONNECTORS AND TERMINALS - MOTORS

MOTOR CONNECTION

MOTOR HARNESS			MOTOR ITSELF	
CONNECTOR P/N		TERMINAL P/N.	CONNECTOR P/N	TERMINAL P/N
HEAD	30913	30950	30914	30951
KNEE	30913	30950	30914	30951
HILO	30913	30950	30914	30951

CONNECTORS AND TERMINALS - SIDEGUARDS

SIDEGUARD CONNECTION

SIDEGUARD HARNESS			SIDEGUARD ITSELF	
CONNECTOR P/N		TERMINAL P/N	CONNECTOR P/N	TERMINAL P/N
LEFT GUARD	22152	22154	22151	22153
RIGHT GUARD	22152	22154	22151	22153

EXTRACTION TOOL - TERMINALS AT P.C. BOARD

HILL-ROM P/N SA3658 EXTRACTION TOOL (BLACK-FLAT)

This tool is used to extract terminals from the connectors that connect to P3, P4, P5 and P7 on the printed circuit board.

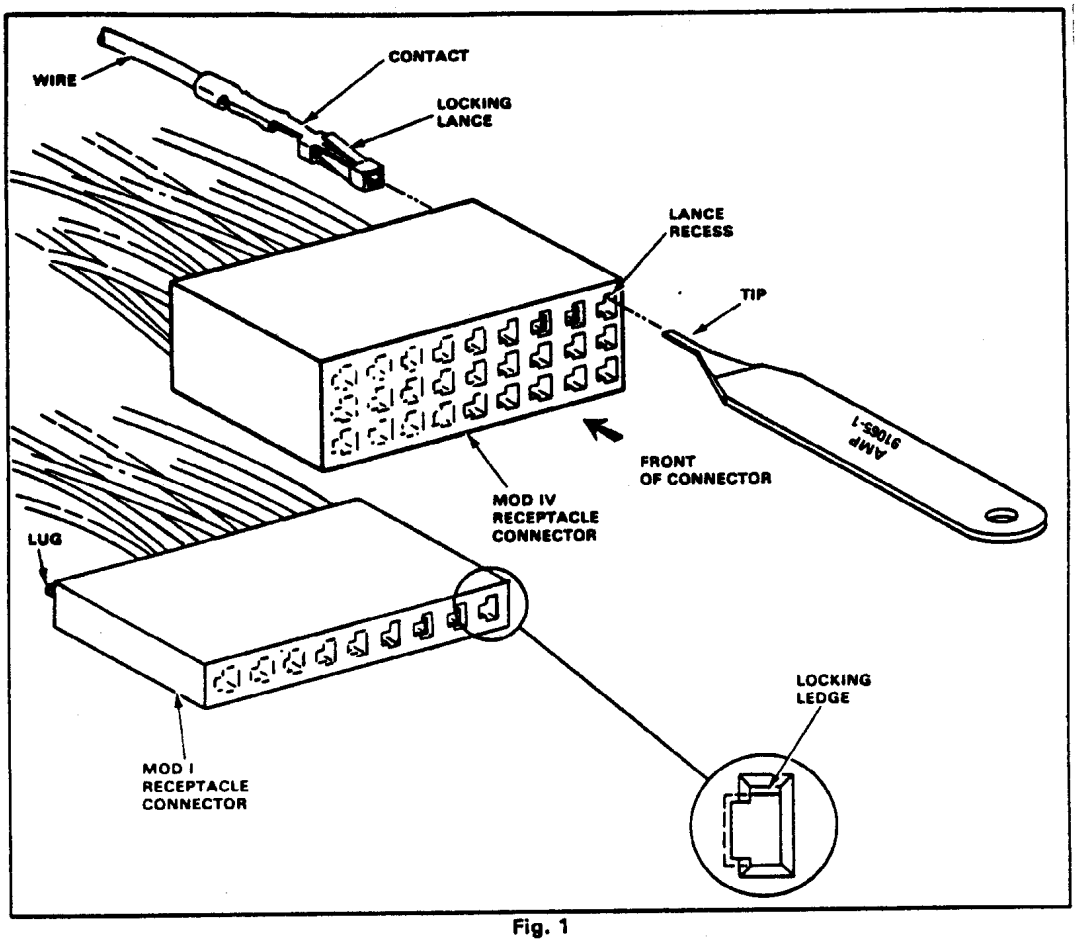


Fig. 1

1. INTRODUCTION

The AMP Extraction Tool 91065-1 is recommended for removing crimp snap-in contacts from the AMPMODU* Mod I and Mod IV Receptacle Connectors as listed in Figure 1.

NOTE *All dimensions presented on this instruction sheet are in inches, unless otherwise stated.*

2. DESCRIPTION

The extraction tool tip is designed to enter the lance recess in the front of the housing and depress the locking lance of the contact.

3. EXTRACTION PROCEDURE (Figure 1)

Determine which connector contains the contact to be removed and proceed as follows:

1. Insert the tool straight into the lance recess until it bottoms on the locking ledge.
2. Holding the tool and connector in one hand grip the wire of the contact with the other hand and pull the contact out of the back of the connector.

NOTE *The connector includes both the housing and the contacts while the housing is the material which forms the encapsulement for the contacts.*

The lance recess is the cavity located between the contact and the connector housing.

A solid rib (locking ledge) at the rear of the lance recess cavity provides a stop for the extraction tool. The housings are designed to prevent improper insertion of the contacts, which are inserted into the rear of the housing.

A lug is located on the side of the Mod I housing which contains the contact locking ledge.

(continued on the following page)

HILL-ROM P/N SA3697 EXTRACTION TOOL (BLUE PLASTIC HANDLE)

This tool is used to extract terminals from the connectors that connect to P1 and P2 on the printed circuit board.

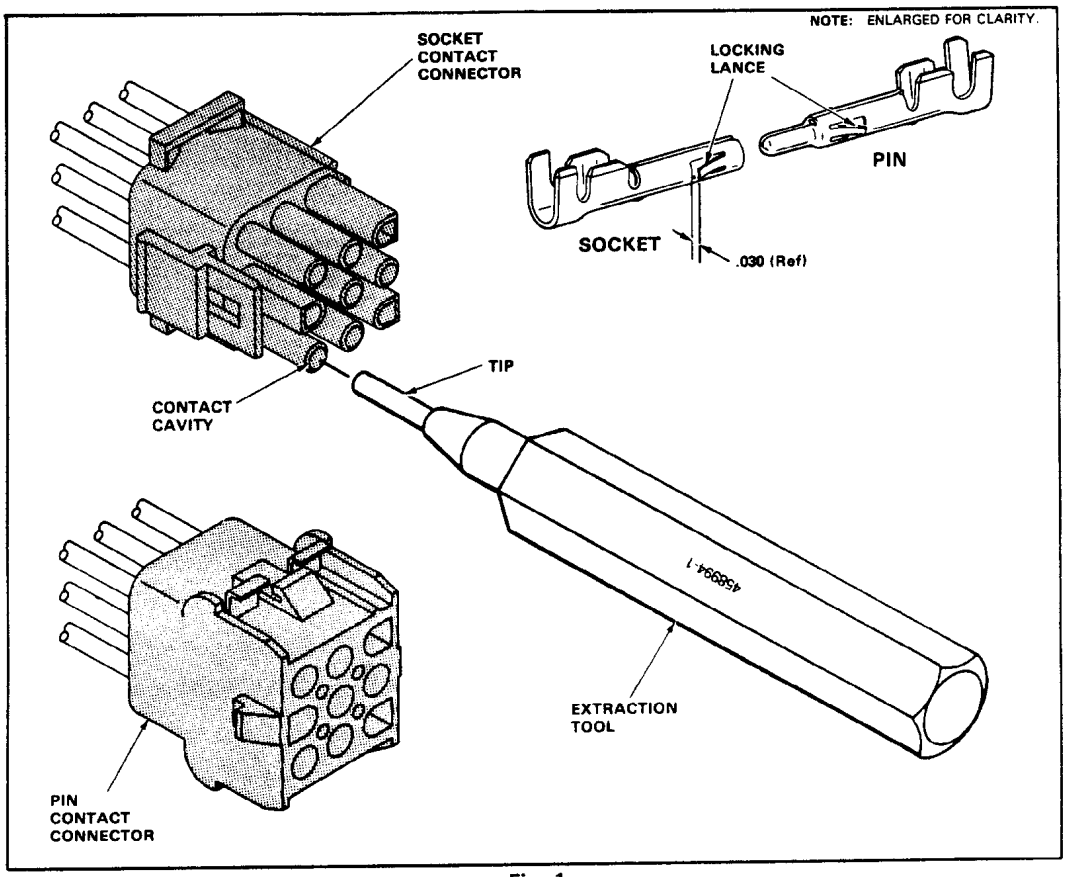


Fig. 1

1. INTRODUCTION

This instruction sheet covers the use of the AMP Extraction Tool 458994-1 which is designed for removing AMP Universal MATE-N-LOK★ pin and socket contacts from their housings. Read these instructions thoroughly before removing any contacts.

NOTE *All dimensions presented on this instruction sheet are in inches, unless otherwise stated.*

2. DESCRIPTION

The extraction tool tip is designed to enter the contact cavity in the front of the connector and depress the locking lance of the contact.

The extraction tip, located at the front of the tool, fits over the pin and socket contacts. When the tip is bottomed in the contact cavity, the contact locking lances are forced together, allowing the contact to slide free from the housing when the spring-loaded handle is depressed fully.

3. EXTRACTION PROCEDURES (Figure 1)

1. Holding the connector firmly with one hand, slide the extraction tool tip over either the pin contact or socket contact.
2. Insert the tip over the contact until it bottoms in the contact cavity, causing the locking lances of the contact to close.
3. Depress the extraction tool handle FULLY until the contact is pushed part way out of the contact cavity. Remove the contact fully by pulling the wire attached to the contact.

EXTRACTION TOOL - TERMINALS AT SIDEGUARD CABLE CONNECTION

HILL-ROM P/N 428356 EXTRACTION TOOL (PINK METAL HANDLE)

This tool is used to extract terminals from the plug and receptacle of the sideguard cable.

P.C. BOARD - REMOVAL

1. Remove six (6) screws that hold on the foot end dust cover. (If applicable)
2. Fold the knee section up and back toward the head end of the bed.
3. Raise the knee section up enough to pull the dust cover off the bed. (In case of power failure, see "MANUAL OPERATION OF BED")
4. Unplug the bed from the wall outlet.
5. Remove one (1) screw from the control box cover. (see diagram "A")

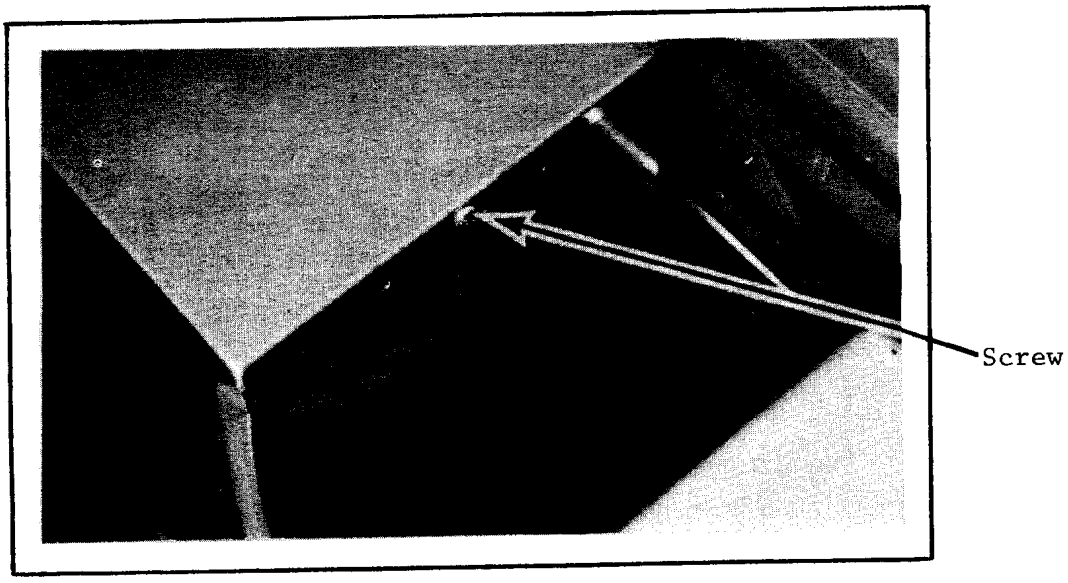


DIAGRAM "A"

6. Carefully pull the cover up and toward the head end of the bed being cautious not to put tension on the cable connected to the cover.
7. Remove connectors from all board locations.
8. Remove one (1) screw and pull the printed circuit board up and toward the head end of the bed. (see diagram "B")
9. Reverse the procedure to reinstall.

(continued on the following page)

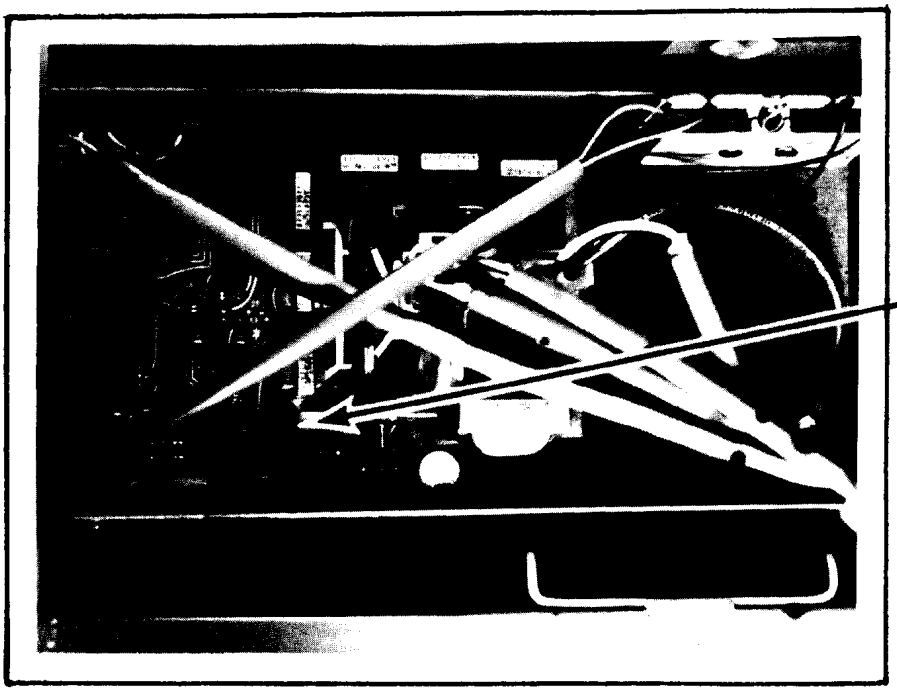


DIAGRAM "B"

HILOW LIMIT SWITCH REPLACEMENT

1. Remove six (6) screws that hold on the foot end dust cover. (If applicable)
2. Fold the knee section up and back toward the head end of the bed.
3. Raise the knee section up enough to pull the dust cover off the bed. (In case of power failure, see "MANUAL OPERATION OF BED")
4. Unplug the bed from the wall outlet.
5. Remove one (1) screw from the control box cover. (see diagram "A")
6. Carefully pull the cover up and toward the head end of the bed being cautious not to put tension on the cable connected to the cover.

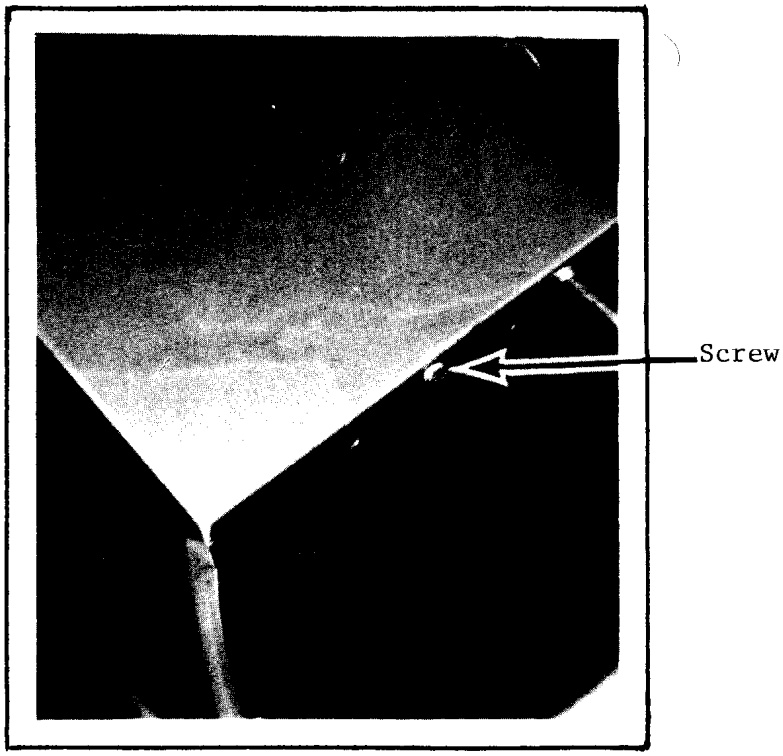


DIAGRAM "A"

(continued on the following page)

7. Unplug the cable that runs from the cover to the printed circuit board and lay the cover aside.
8. Disconnect the terminals from the faulty switch one at a time and replace them on the appropriate contacts of the new switch until all terminals are switched. (see diagram "B")
9. Remove two (2) screws and the plastic switch holder. (see diagram "B")
10. Slide the new switch onto the mounting posts and reassemble.

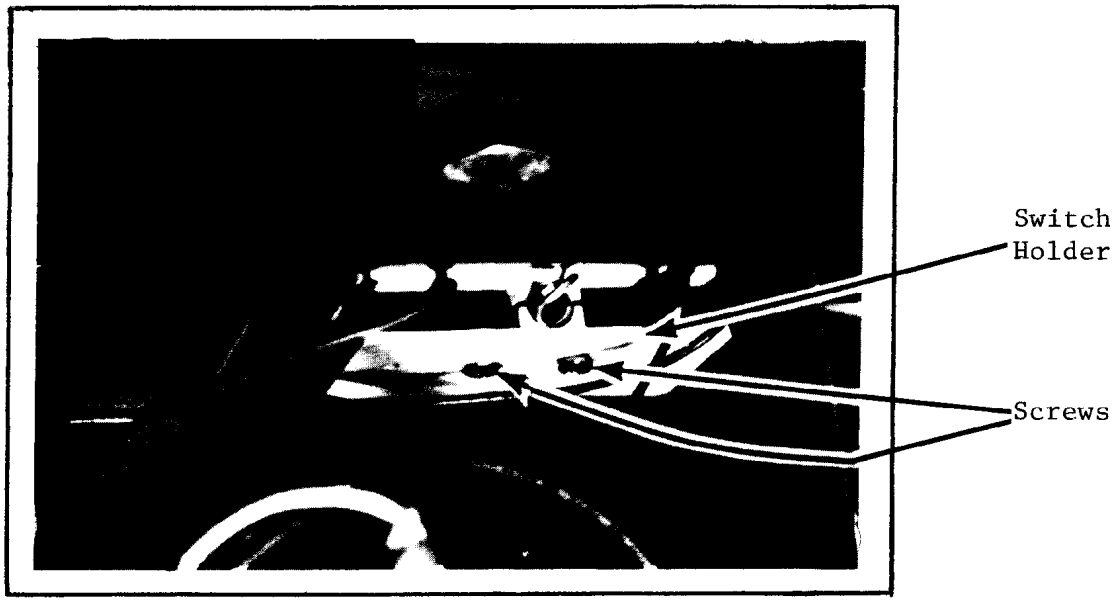


DIAGRAM "B"

HILOW CONTROL SWITCH REPLACEMENT - CONTROL BOX COVER

1. Remove the bed end at the foot of the bed.
2. Fold the knee section up and back toward the head end of the bed.
3. Remove six (6) screws that hold on the foot end dust cover.
4. Raise the knee section enough to pull the dust cover off the bed. (In case of power failure, see "MANUAL OPERATION OF BED")

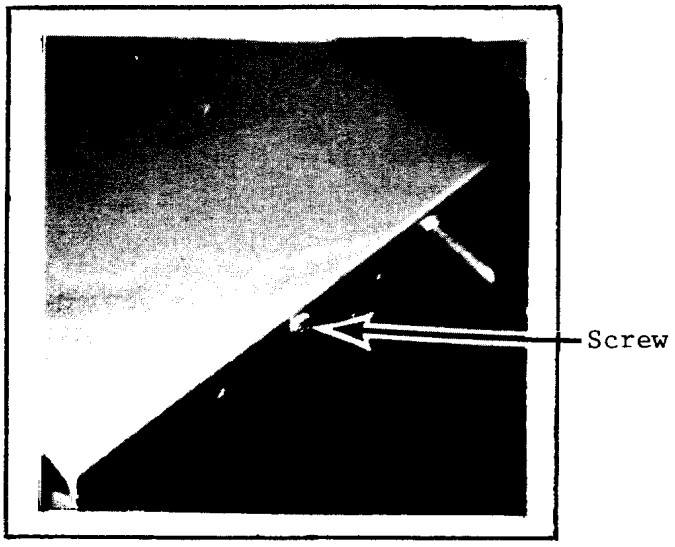


DIAGRAM "A"

(continued on the following page)

5. Unplug the bed from the wall outlet.
6. Remove one (1) screw from the control box cover. (see diagram "A")
7. Carefully pull the cover up and toward the head end of the bed being cautious not to put tension on the cable connected to the cover.
8. Unplug the cable that runs from the cover to the printed circuit board.
9. Remove the two (2) screws which hold the switch paddles in place. (see diagram "B")
10. Remove the two (2) screws which hold the switch assembly to the cover. (see diagram "C")
11. Unplug the cable from the switch assembly and plug it into the new switch assembly. (It is necessary to replace the complete switch assembly even if only one switch is defective)
12. Reverse the procedure to reassemble.

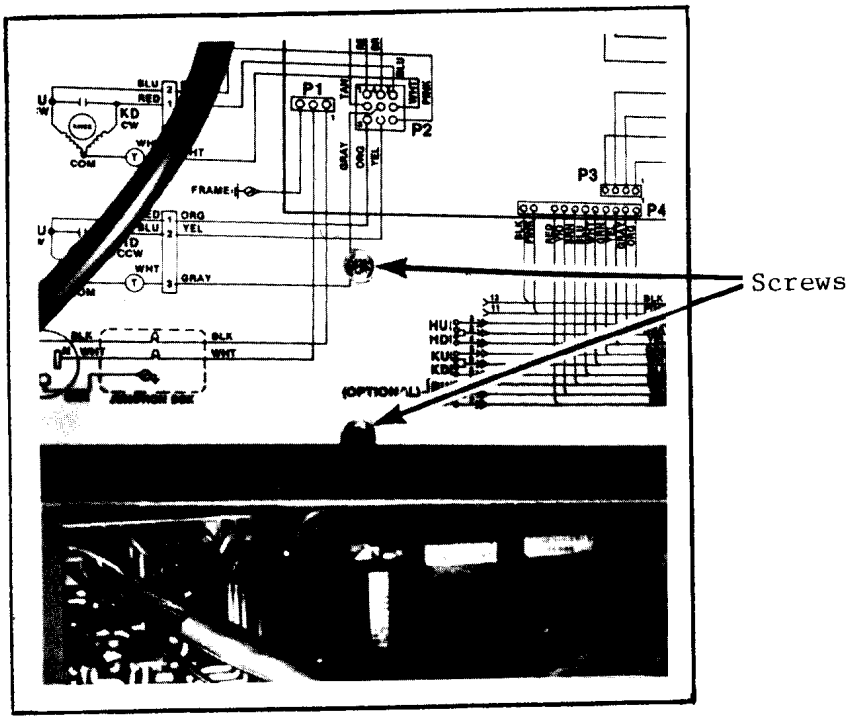


DIAGRAM "B"

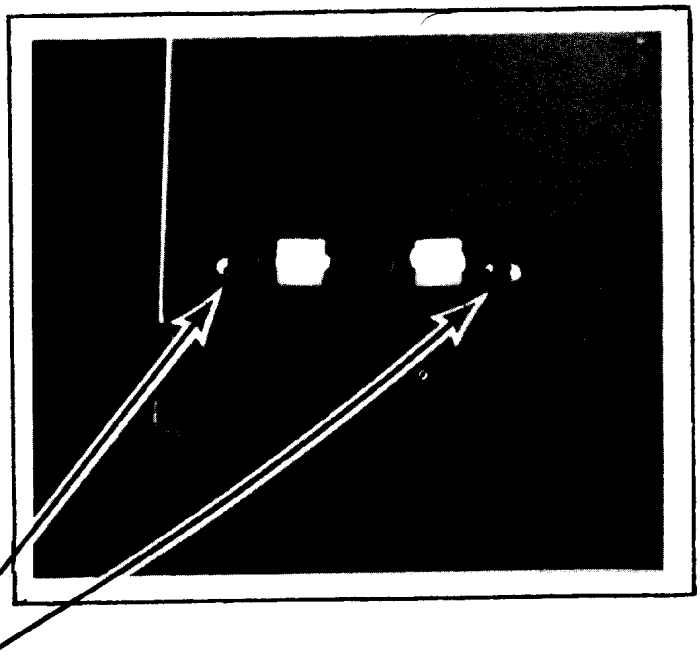


DIAGRAM "C"

HILOW MOTOR REMOVAL

1. Remove six (6) screws holding on the foot end dust cover. (If applicable)
2. Fold the knee section up and toward the head end of the bed.
3. Raise the knee section up enough to pull the dust cover off the bed and then lower the head, knee and hilow function completely down. (If you have a power failure, see "MANUAL OPERATION OF BED")
4. Unplug the bed from the wall outlet.
5. Lower the sideguards on one side of the bed into their stored position and tie them into place.
6. Turn the bed over on its side, (the side with the sideguards tied in place), and remove the hilow motor cover by removing two (2) screws, one (1) nut and a cap screw. (see diagram "A")
7. Unplug the motor connector by squeezing the tabs and pulling.
8. Remove the nut and bolt taking note the sequence of assembly of the motor mounting parts. (see diagram "B")
9. Taking note of how the motor cable rests in the housing, slide motor shaft out of motor coupling.
10. Pull the capacitors down from the rubber grommet mount.
11. Reverse this procedure to reassemble, keeping in mind the position of the capacitors, motor cable, and the sequence of assembly of the motor mounting parts. (see diagram "B")

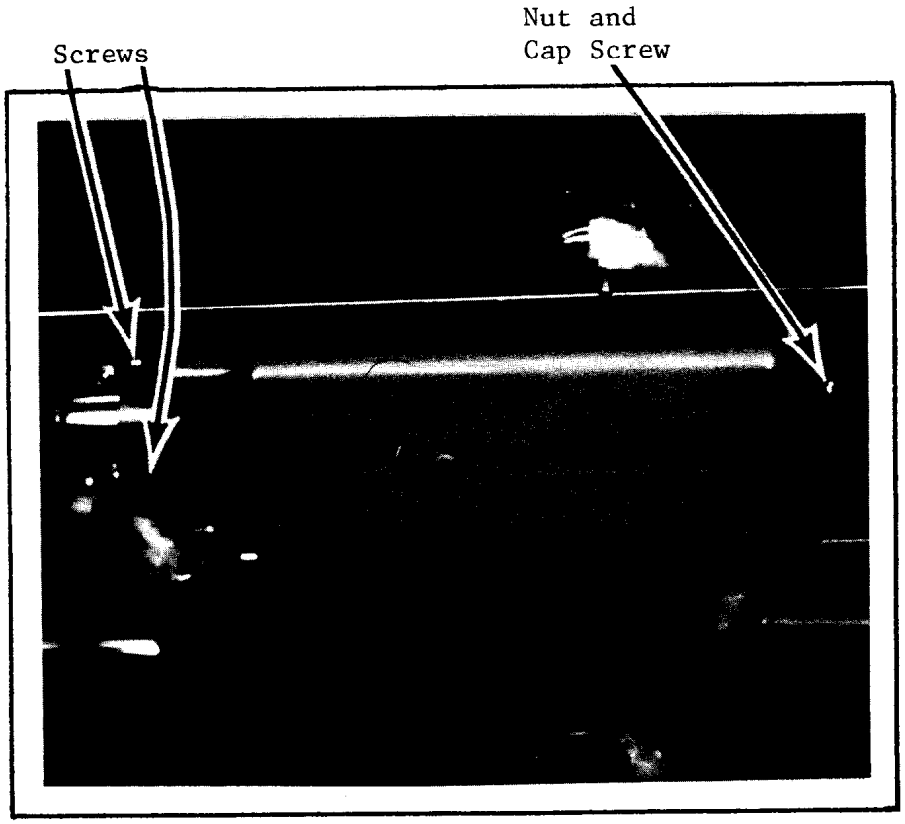


DIAGRAM "A"

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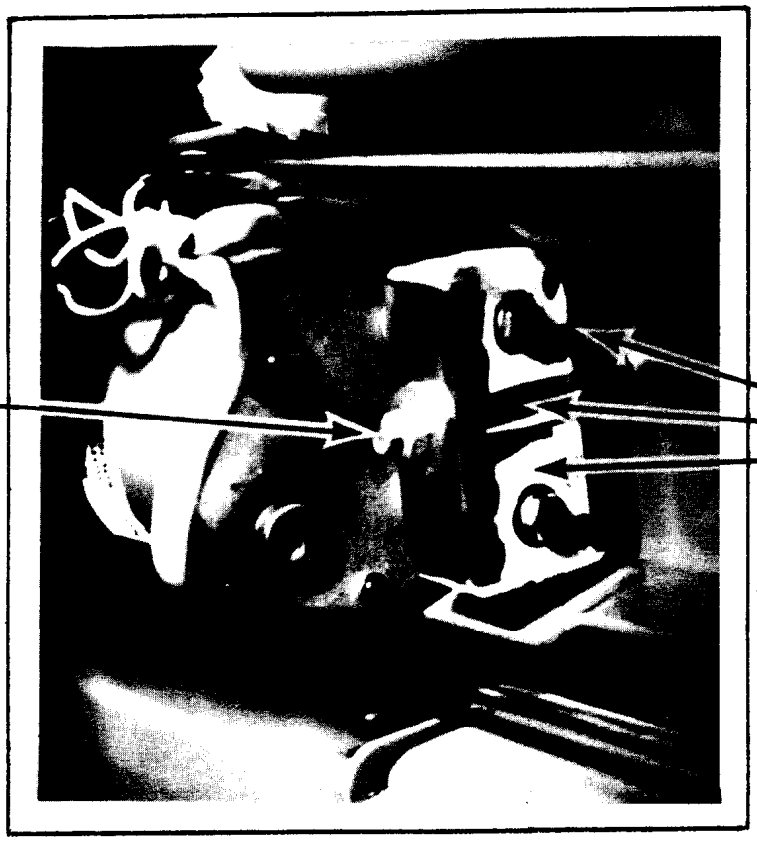

DIAGRAM "B"

HILOW SCREW ASSEMBLY REMOVAL

1. Remove the hilow motor. (see "HILOW MOTOR REMOVAL")
2. Remove two (2) cotter pins and push the hilow tie rods out of the holes at the extreme head end of the bed. (see diagram "A")
3. Remove the cable clamp screw and two (2) bolts and nuts. (see diagram "B")
4. Slide the entire assembly toward the foot end of the bed and lift it out. (It may be necessary to lower the end of the assembly at an angle in order to get the small roll pin at the end of the screw through the holes in the mounting bracket. (see diagram "C")
5. Reverse procedure to reinstall.

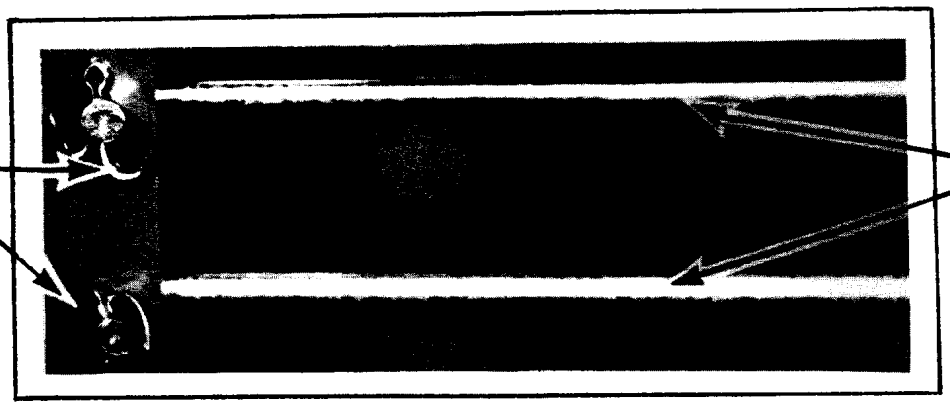

DIAGRAM "A"

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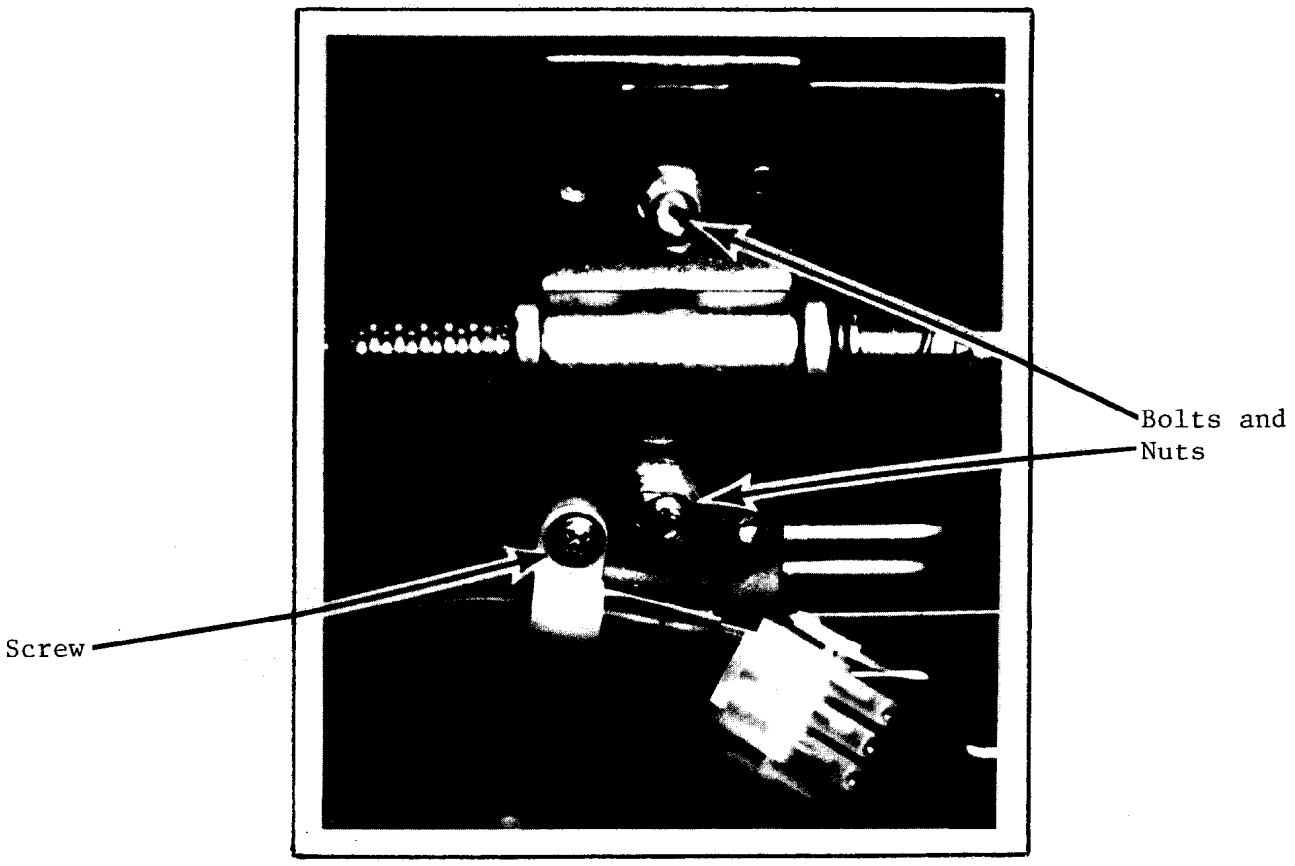

DIAGRAM "B"

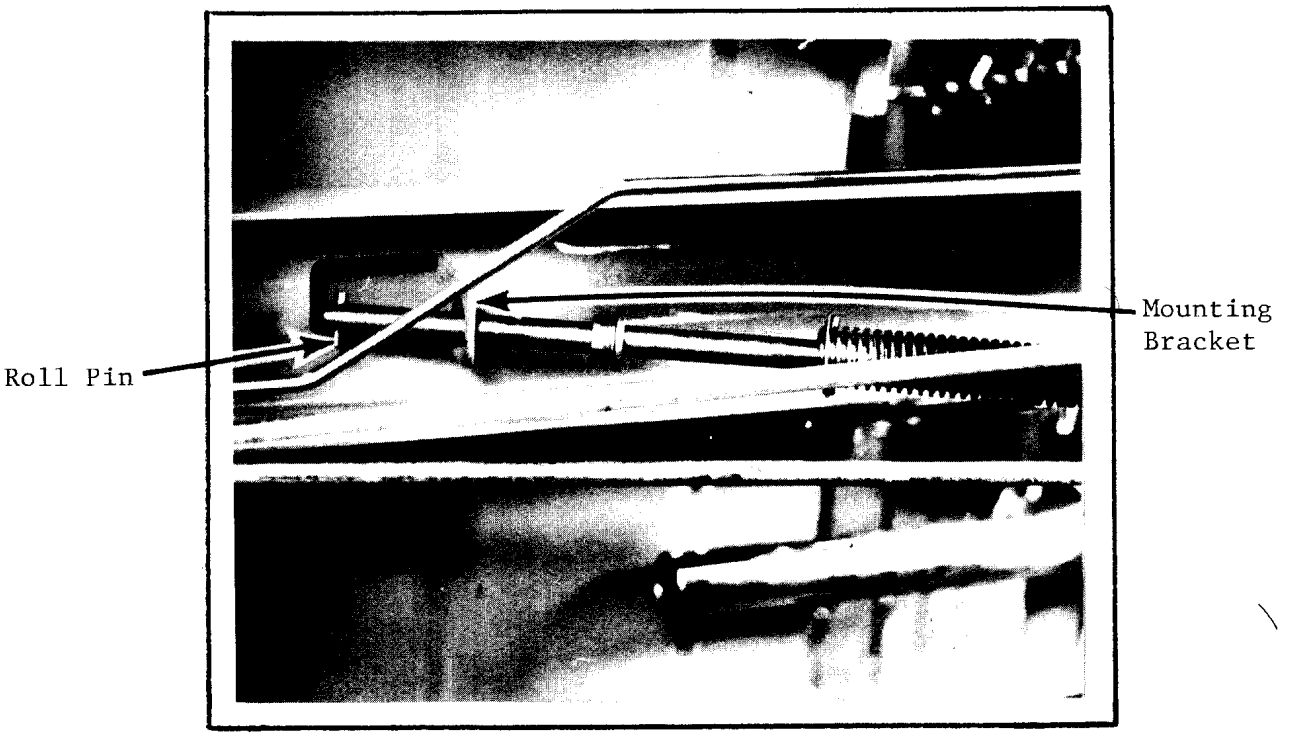

DIAGRAM "C"

HILOW THRUST BEARING REMOVAL

1. Remove the hilow motor. (see "HI-LOW MOTOR REMOVAL")
2. Remove two (2) roll pins, slide the coupling and the collar off the shaft and remove the thrust bearing. (see diagram "A")
3. Reverse the procedure to reinstall.

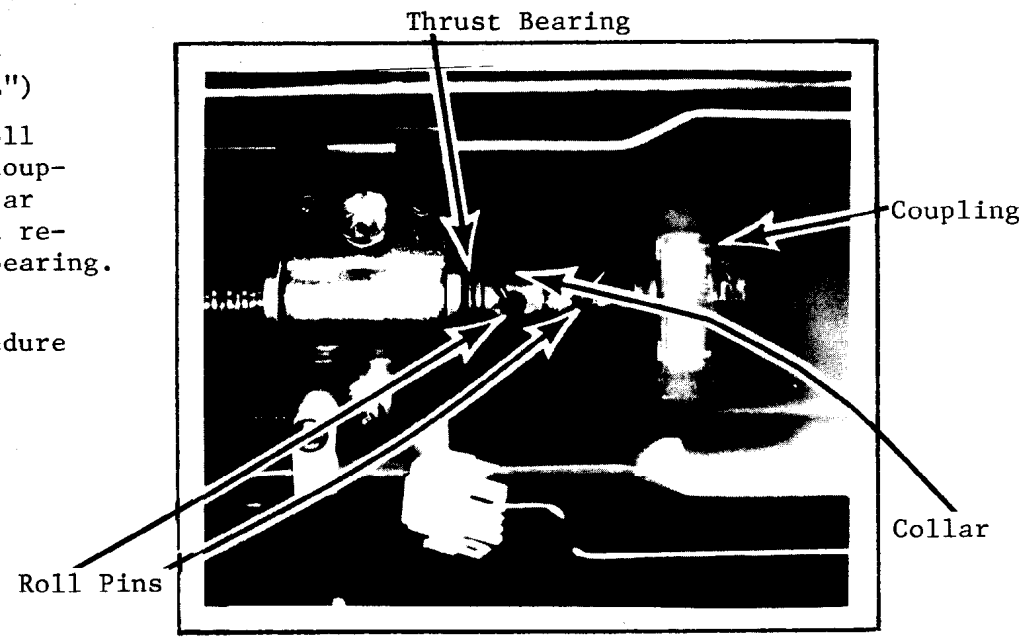

DIAGRAM "A"

HEAD AND KNEE DRIVE SCREWS - BENT OR BROKEN

The most common reason hospitals have bent or broken drive screws is that such items as chairs, wastebaskets, footstools, etc. manage to get put under the bed and then the bed is lowered on them. It is strongly urged that nothing be placed or stored under the bed.

HEAD AND KNEE DRIVE UNITS - REMOVAL

1. Raise the hilow all the way up and lower the head and knee sections to the flat position. (If no power is available, see "MANUAL OPERATION OF BED")
2. It is not necessary to remove the dust covers as the motor drives can be removed from under the bed.
3. Unplug the main power cord from the wall receptacle.
4. Disconnect the motor connector, (motor connectors have a locking device). To release, squeeze the plug and pull apart. (see diagram "A")
5. Remove two (2) hairpins while supporting the drive unit with one hand. (see diagram "A")
6. Remove the cotter pin and the clevis pin and lower the unit. (see diagram "A") Note the location of the bracket on the end of the tube.
7. Reverse the procedure to reinstall.

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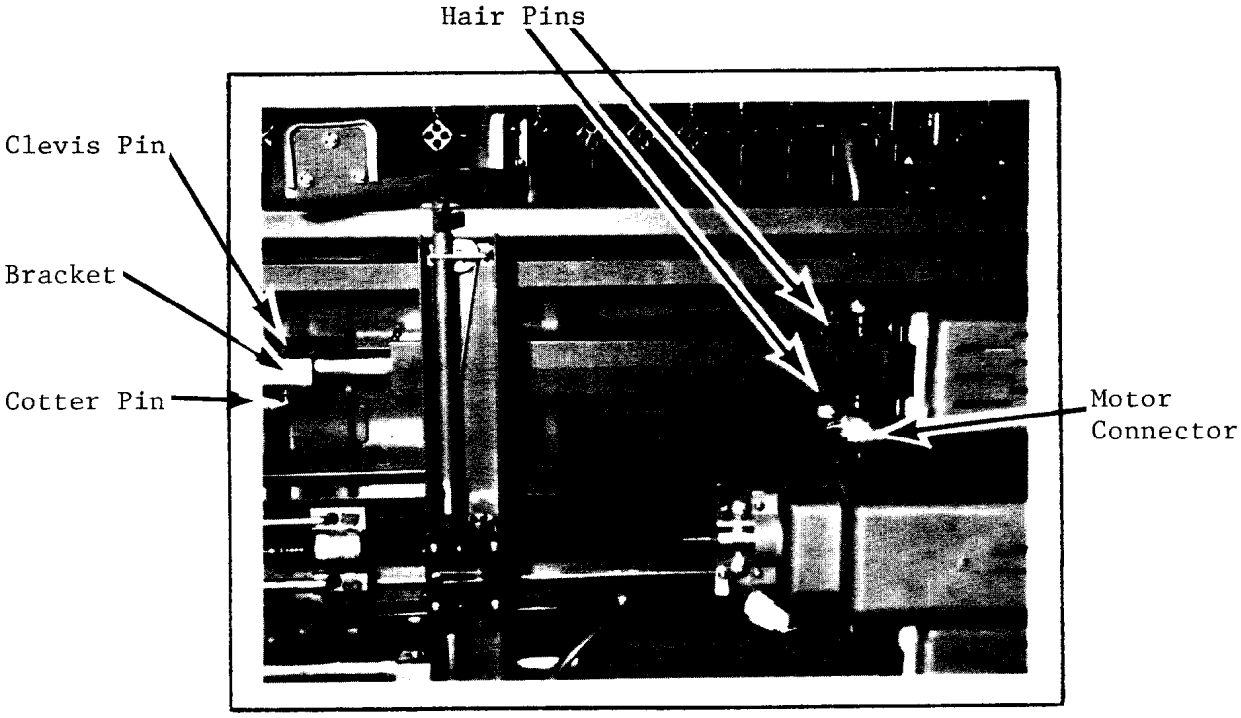

DIAGRAM "A"

HEAD AND KNEE MOTOR REMOVAL

1. Remove the drive unit. (see "HEAD AND KNEE DRIVE UNITS - REMOVAL")
2. Remove the motor cover by removing a nut, pulling the cover from the bolt and sliding the cover so the tabs will release from the housing. (see diagram "A")

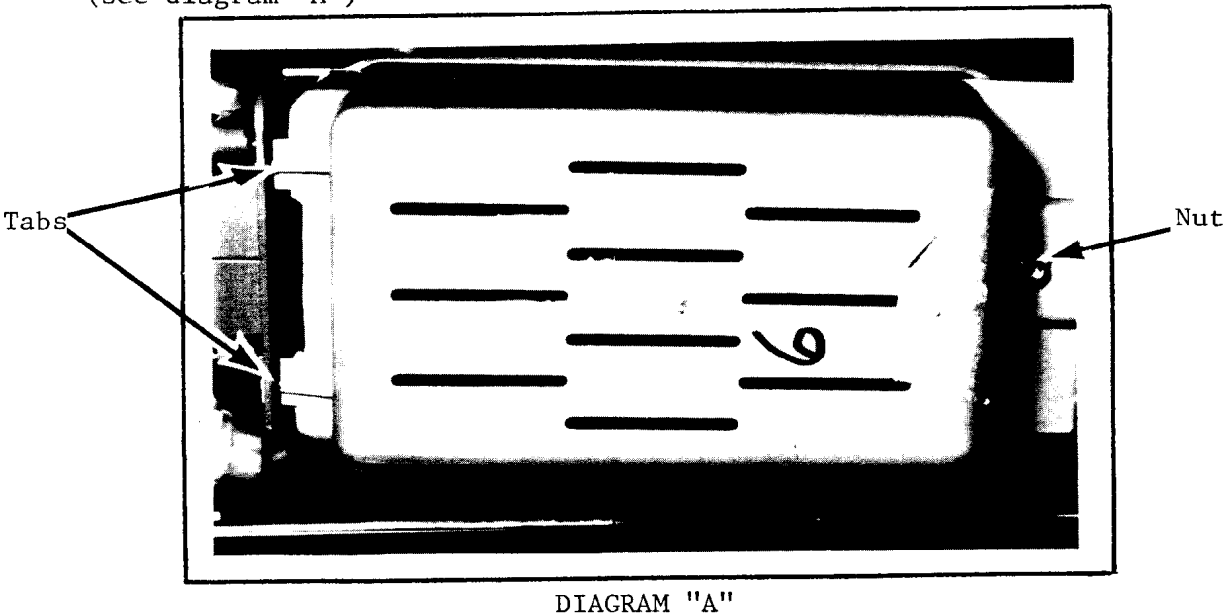

DIAGRAM "A"

(continued on the following page)

3. Remove the nut and bolt, taking note the sequence of assembly of the motor mounting parts. (see diagram "B")

4. Taking note of how the motor cable resets in the housing, slide the motor shaft out of the motor coupling. The capacitor will come out with the motor.

5. Reverse the procedure to assemble, keeping in mind the position of the motor cable in the housing and the sequency of assembly of the motor mounting parts.

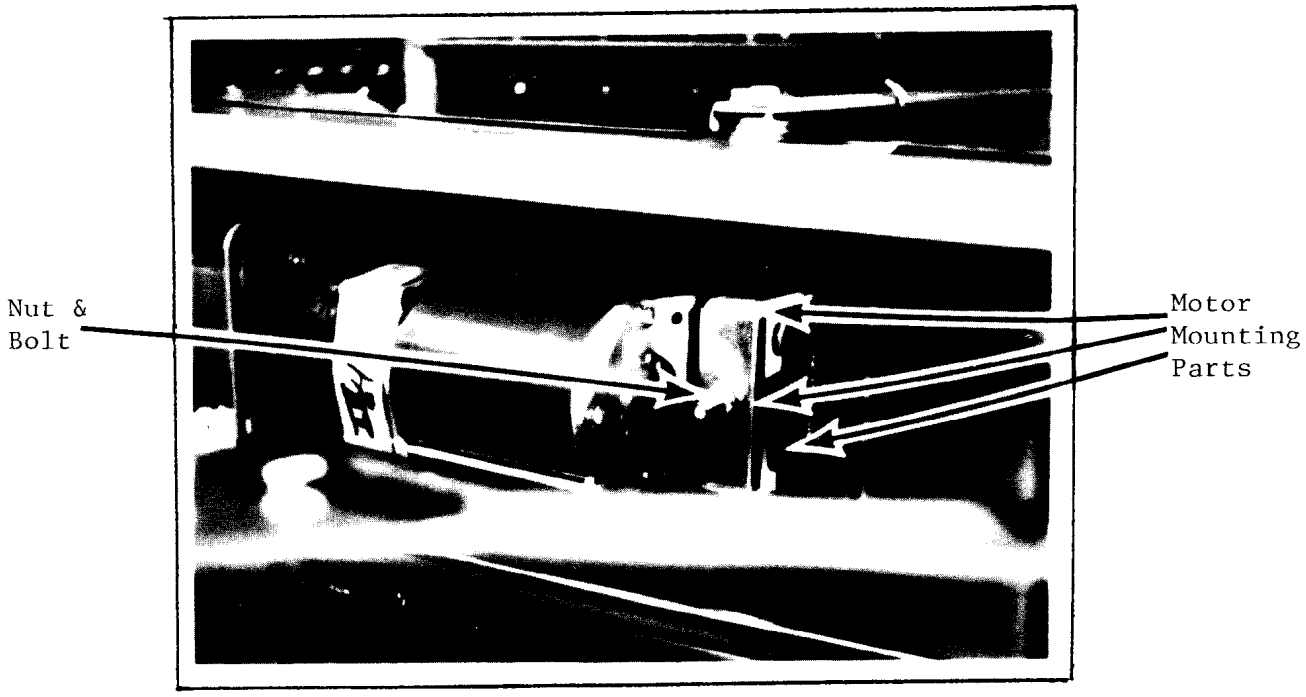

DIAGRAM "B"

CAPACITOR REPLACEMENT - HILOW MOTOR

1. Raise the hilow function completely up. (In case of power failure, see "MANUAL OPERATION OF BED")

2. Unplug the bed from the wall outlet.

3. Remove the motor cover by removing two (2) screws and one (1) nut. (see diagram "A")

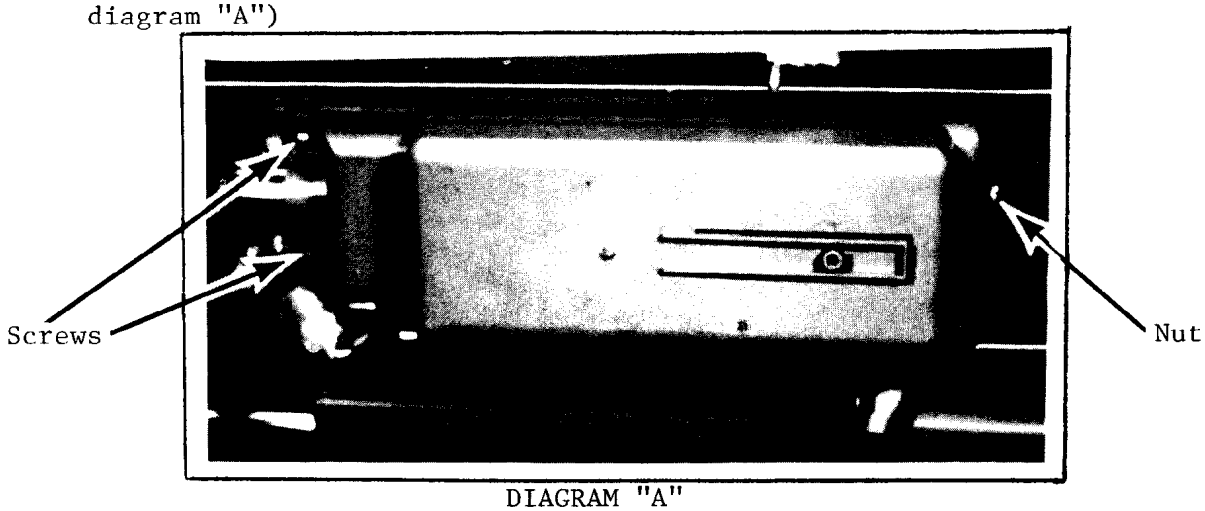

DIAGRAM "A"

(continued on the following page)

4. Pull the capacitor (s) down as far as it will go and remove the electrical tape around the cap.
5. Remove the cap and pull one (1) terminal off at a time and replace it on the appropriate contact of the new capacitor until you have all the terminals switched. (see diagram "B")
6. Replace the cap with the electrical tape and reassemble.

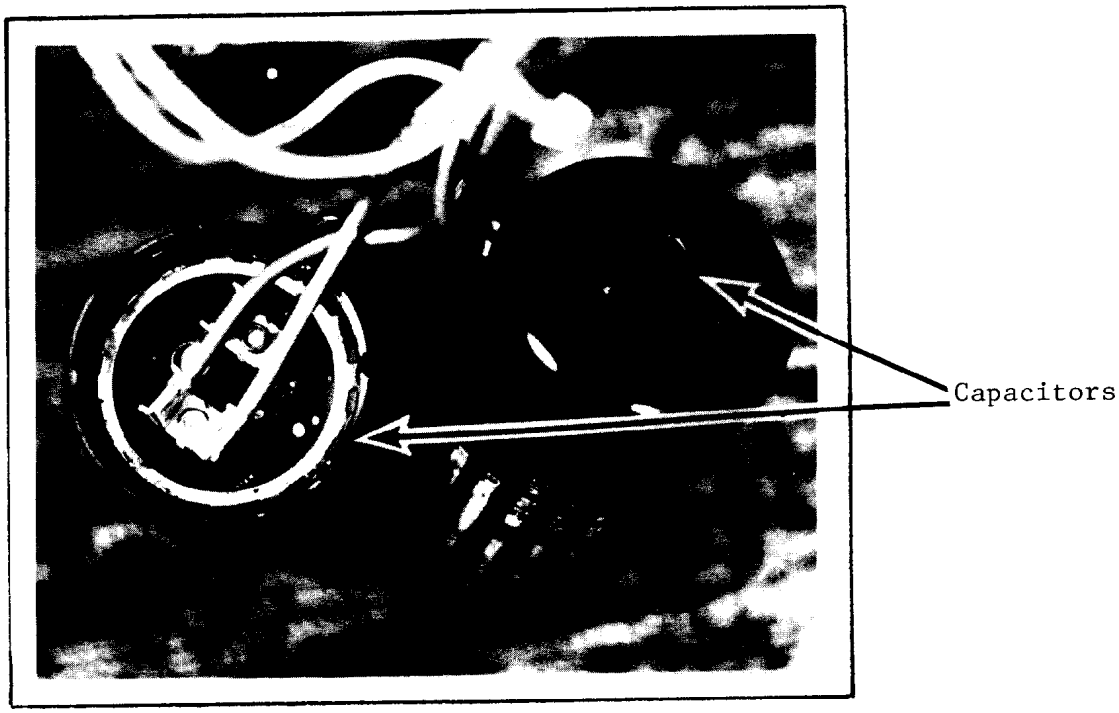

DIAGRAM "B"

CAPACITOR REPLACEMENT - HEAD AND KNEE MOTORS

1. Raise the hilow function completely up. (In case of power failure, see "MANUAL OPERATION OF BED")
2. Unplug the bed from the wall outlet.
3. Remove the motor cover by removing a nut, pulling the cover from the bolt and sliding the cover so the tabs release from the housing. (see diagram "A")
4. Pull the capacitor down as far as it will go and remove the electrical tape around the cap.
5. Remove the cap and pull one (1) terminal off at a time and replace it on the appropriate contact of the new capacitor until you have all the terminals switched. (see diagram "B")
6. Replace the cap with the electrical tape and reassemble.

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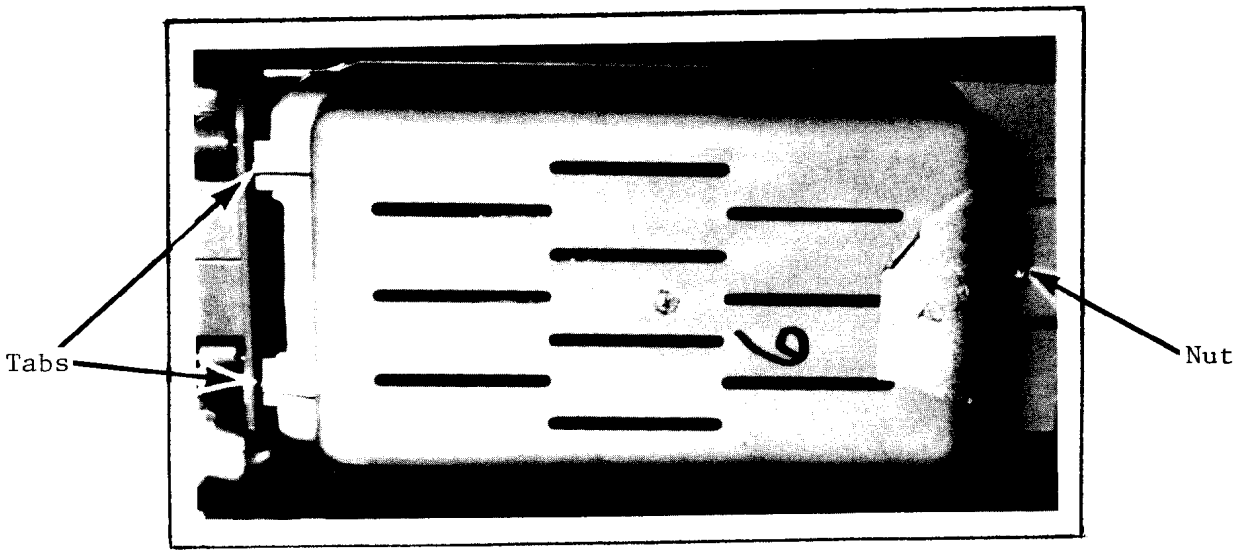

DIAGRAM "A"

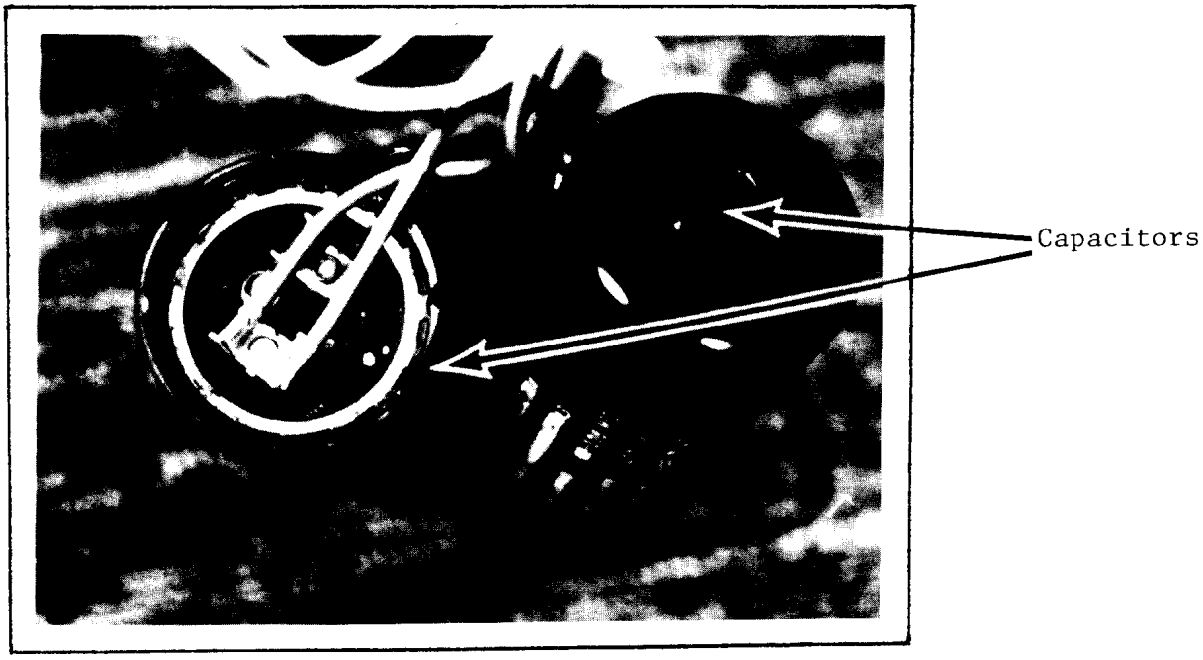

DIAGRAM "B"

TRENDELENBURG - TROUBLESHOOTING

1. If the bed completely lowers but does not go into trendelenburg or reverse trendelenburg, the mechanical linkage is not engaging properly. In order for either trendelenburg or reverse trendelenburg to work properly, the plated bracket must be wedged in between the two torque tubes when either knob is pulled out. (see diagram "A")

2. If both trendelenburg and reverse trendelenburg knobs are pulled out at the same time and the bed is lowered, the bed will go down about 3 to 4 inches and stop. However, the hilow motor will continue to run until it reaches its low limits as long as you hold the "down" button. If this occurs, run the hilow up until the bed raises to its full height. Pull either the trendelenburg or the reverse trendelenburg knob out and try again.

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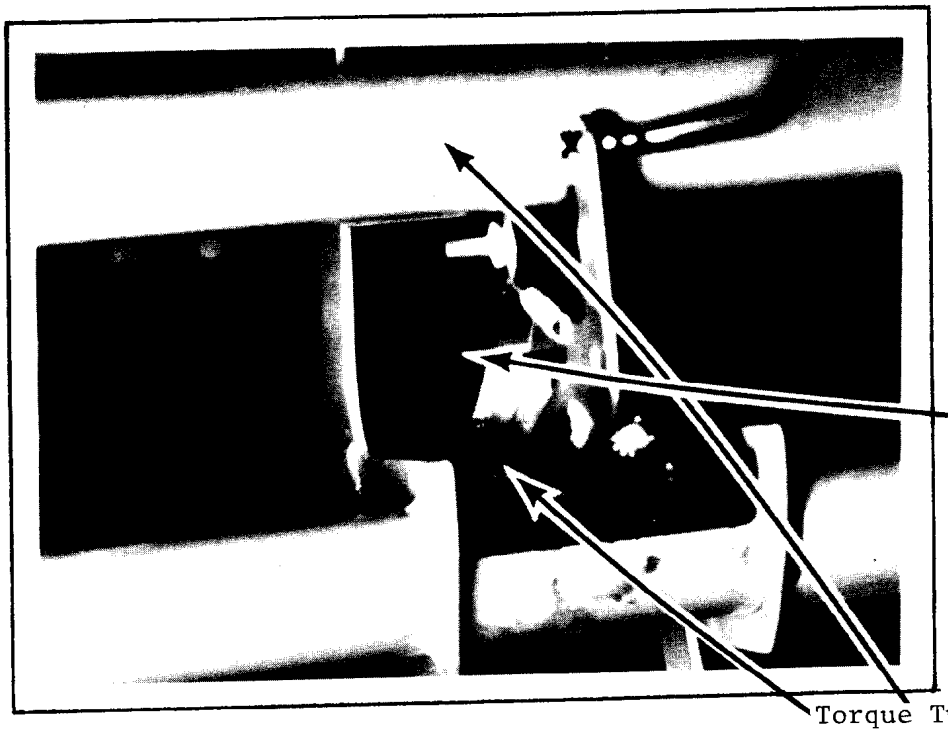

DIAGRAM "A"

TRENDELENBURG - INDICATORS ADJUSTMENT

It may be necessary from time to time to adjust the indicator knobs for trendelenburg in order to give the correct readings for inches and degrees. This can be accomplished through the following steps.

1. Raise the bed to its highest position.
2. Pull both trendelenburg knobs out. (Located at the foot end of the bed).
3. Lower the bed until it stops going down.
4. Using a large pair of pliers or a channel locks, turn the four (4) indicator knobs until their arrows point to "0" on the corresponding labels.
5. Raise the bed up until it stops and your indicators should be set for accurate readings.

TRENDELENBURG - ASSEMBLY REMOVAL

1. Raise the bed to its full height. (If no power is available, see "MANUAL OPERATION OF BED").
2. Remove the small cotter pin and slide the rod out of the lever. (see diagram "A")
3. Remove one (1) screw (see diagram "A"). This will allow the plastic pieces to come apart. (When the screw is removed, a square nut will fall out of the assembly).

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4. Remove the assembly and repair or replace the parts as needed.
5. Reverse the procedure to reinstall. (If you have difficulty figuring which parts go where, there is an identical trendelenburg assembly located at the opposite end of the bed).

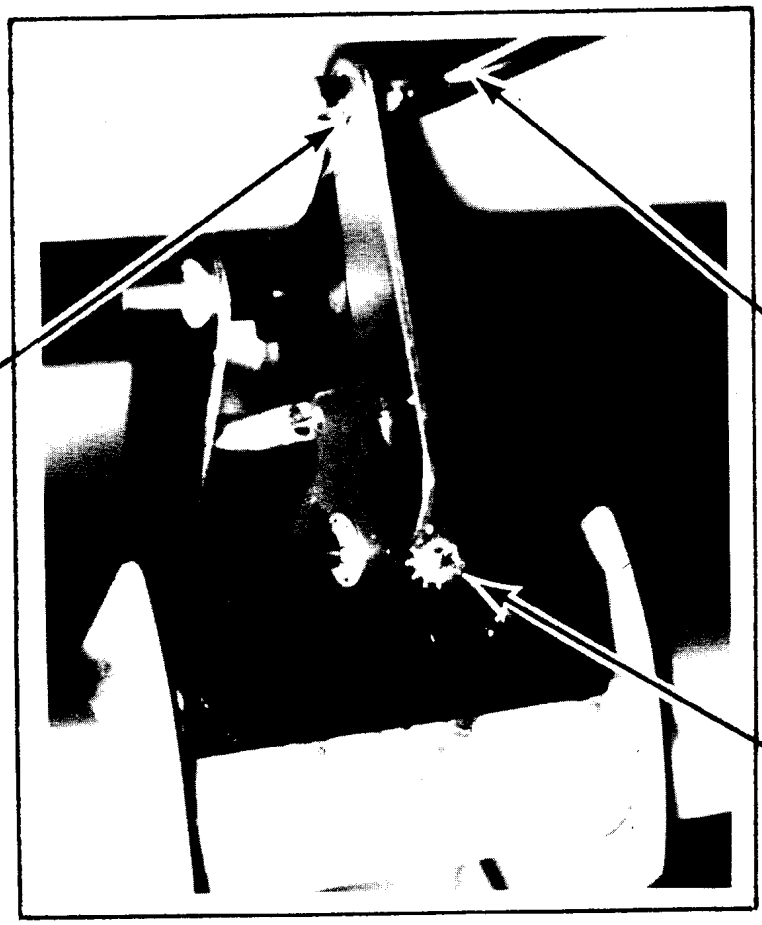

DIAGRAM "A"

LOCKING BASE - CASTER ADJUSTMENT

There are two (2) casters involved in the adjustment of the locking base system. The foot end caster on the left side of the bed (determined as a patient would lie in the bed on his back) controls half of the brake feature and is the only caster that controls the steer feature. The head end caster on the right side of the bed controls the other half of the brake feature. The remaining two (2) casters are basic swivel casters. Both the brake/steer and the brake caster must be adjusted. The proper steps of adjustment are as follows:

1. Remove the leg covers over both the brake/steer and the brake caster by removing two (2) screws, (one on either side). (see diagram "A")
2. Place the brake/steer pedal in the neutral or level position.

(continued on the following page)

3. Adjust both setscrews (above casters) to take up any excess cable slack. (see diagram "B")
4. Place the brake/steer pedal in the "steer" position.
5. Adjust the setscrew of the brake caster until a slight rachet is heard when you swivel the caster.
6. Place the brake/steer pedal in the neutral position.
7. Adjust the brake/steer caster until it locks into a position parallel with the length of the bed when you swivel it.
8. Back off the setscrew until the caster just unlocks.
9. Check both casters for proper operation in all positions.
10. Reassemble the leg covers.

DIAGRAM "A"

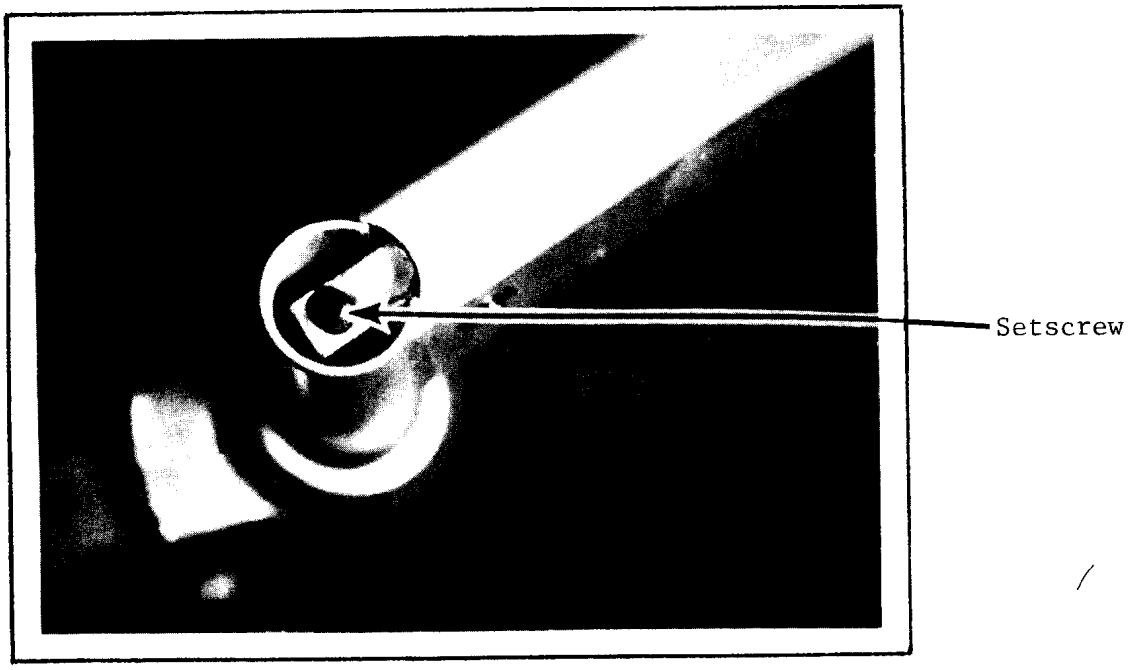

DIAGRAM "B"

LOCKING BASE - TOP BLOCK REPLACEMENT

1. Remove the leg covers from the foot end caster on the left side of the bed and the head end caster on the right side of the bed (determined as a patient would lie in bed on his back). (see diagram "A")
2. Remove the setscrews that are directly above those casters. (see diagram "B")
3. Lower the bed to its low position and slide the sideguards on one side of the bed into their "stored" position. Tie the sideguards in place and turn the bed over on its side.
4. Remove the seafety wire that runs through the set of roll pins nearest the floor. (see diagram "C")
5. Remove one (1) roll pin just under the brake block mechanism. (see diagram "C")
6. Pull the upper brake/steer pedal up through the brake block mechanism and the cams will fall out. (Be sure to note orientation of cams).
7. Remove the four (4) screws that hold the brake block mechanism into the channel and also the seven (7) screws that go into the bottom of the mechanism, being sure to note how the parts are oriented before doing so.

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DIAGRAM "A"

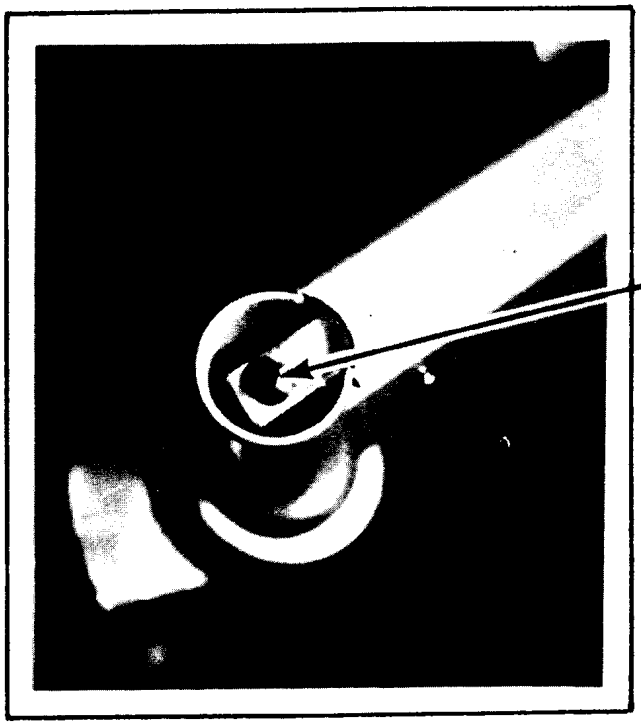

DIAGRAM "B"

8. Disassemble four (4) screws, two (2) bearings and the adapter plate from the damaged top block and reassemble them to the new top block.

9. Use reverse procedure to reassemble mechanism.

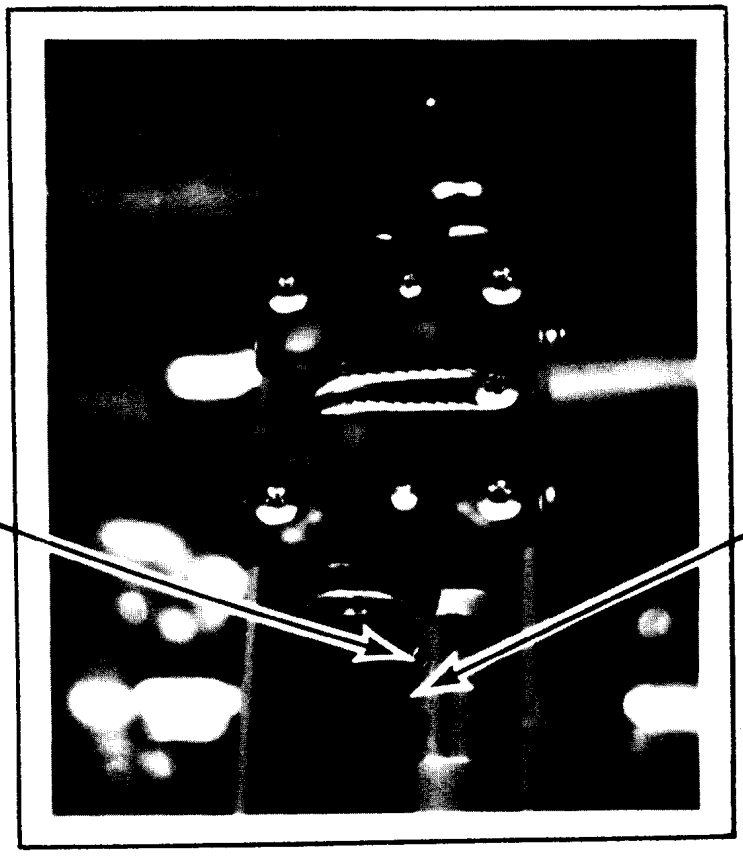

DIAGRAM "C"

LOCKING BASE - CAM REPLACEMENT

1. Remove the leg covers from the foot end caster on the left side of the bed and the head end caster on the right side of the bed (determined as a patient would lie in the bed on his back). (see diagram "A")

2. Remove the setscrews that are directly above those casters. (see diagram "B")

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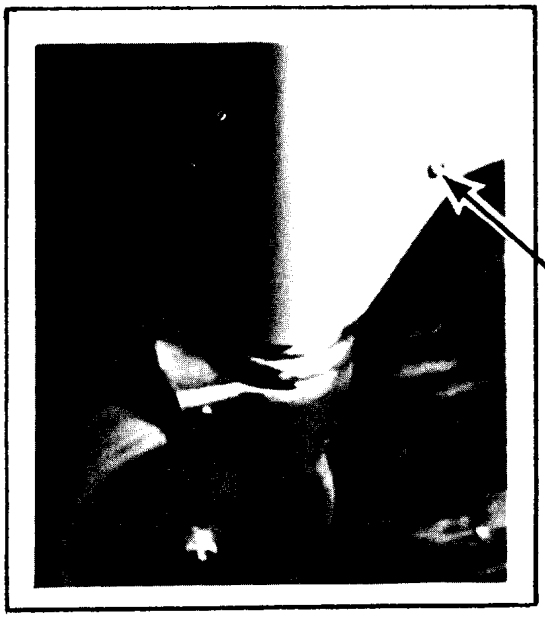


DIAGRAM "A"

3. Lower the bed to its low position and slide the sideguards on one side of the bed into their "stored" position. Tie the sideguards in place and turn the bed over on its side.
4. Remove the safety wire that runs through the set of roll pins nearest the floor. (see diagram "C")
5. Remove one (1) roll pin just under the brake block mechanism. (see diagram "C")
6. Pull the upper brake/steer pedal up through the brake block mechanism, and the cams will fall out. (Be sure to note orientation of cams).
7. Reverse the procedure to reinstall.
8. After you have reassembled the roll pins and safety wire through the brake/steer pedal shaft, turn the bed back on its casters and assemble the allen screws.
9. See "LOCKING BASE - CASTER ADJUSTMENT" to get the correct caster adjustment.

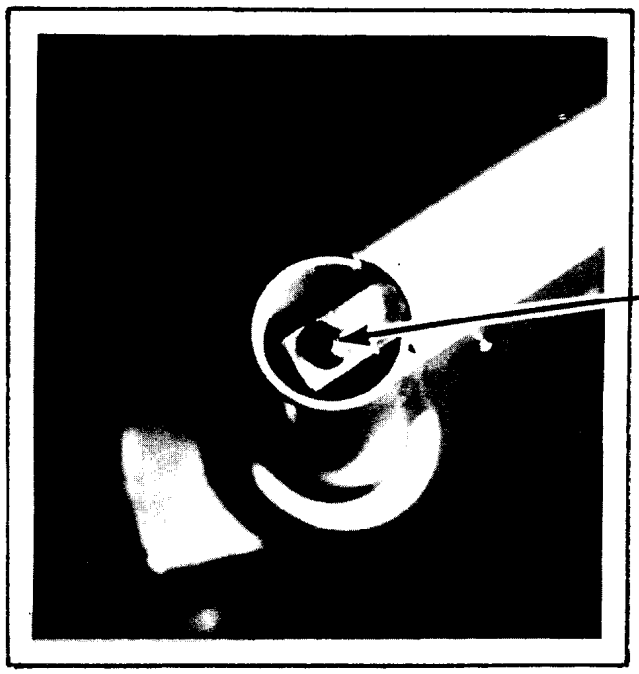


DIAGRAM "B"

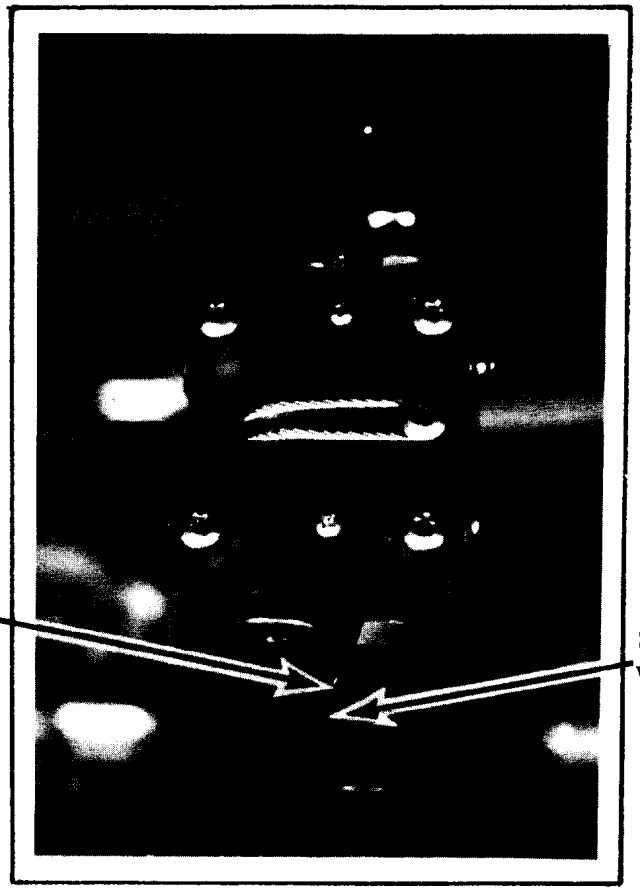


DIAGRAM "C"

ENVIRO-CARE COMPATIBILITY

To enable the 835 bed to be used with Enviro-Care, neither the three-quarter length Model 332, nor the full length Model 333 sideguards can be used. The half length sideguards Model 328 for the head end and the Model 325 for the foot end can be used in conjunction with Enviro-Care. The half length head end electrical sideguards are also compatible.

Also, the roller bumpers Model 818 are not compatible with Enviro-Care. The Model 819 architectural bumpers were designed for this purpose and are a suitable alternative when used with this system.

TROUBLE SHOOTING PROCEDURE - (ELECTRICAL)

The tools you will need to isolate an electrical problem are a volt-ohm meter and a jumper wire.

A MOTOR WON'T RUN WHEN THE SIDEGUARD SWITCH IS DEPRESSED

Caution - Check the bed function lockouts and make sure you're using a good 120 VAC outlet. If your problem doesn't go away, then take the following steps:

STEP #1. Disconnect one of the sideguards from the seat section connector and try the function in the other sideguard. If your problem goes away, the trouble is in the sideguard that is unplugged. If your problem still exists, continue on to step 2.

STEP #2. Reverse the procedure on the opposite sideguard. If your problem still exists, go on to step 3.

STEP #3. Now you will need to isolate the sideguard harness which runs from the sideguard connection under the seat section to the P4 connector on the printed circuit board. Remove the dust cover (if applicable) and the circuit board cover, (see "HILOW LIMIT SWITCH REPLACEMENT", items 1 through 6). Plug the bed into a 120 VAC outlet. Using the following charts and the jumper wire, jump between the terminals of the P4 connector on the printed circuit board. Leave the sideguard harness plugged in.

CHART		
PROBLEM	JUMP FROM TERMINAL	CONNECTOR
HEAD won't come up	3(org) to 8 (grey)	P4
HEAD won't go down	4(yel) to 8 (grey)	P4
KNEE won't come up	5(grn) to 9(wht)	P4
KNEE won't go down	6(blu) to 9(wht)	P4
HILOW won't come up	1(brn) to 7(vio)	P4
HILOW won't go down	2(red) to 7(vio)	P4

(continued on the following page)

If the problem function works properly while jumping the corresponding terminals, the problem is in one of the two wires you are bypassing. Trace these two wires, run a continuity check and determine which one is the open wire. If your problem still exists, go to step 4.

STEP #4. If your problem is other than a hilow problem, go on to step 6. If it is hilow in nature, you will need to isolate the hilow limit switches and wiring. Make sure the bed is not on either of its limits. (If you have no power, see "MANUAL OPERATION OF BED"). If the hilow won't come up, use a jumper wire and jump from terminal 1(brn) to 4(brn) of the P7 connector on the printed circuit board, leaving the connector plugged in. With the jumper wire in place, depress the hilow "up" button at the sideguard. If the bed works, the problem is in the limit switch or its wiring. If the bed won't go down, jump from terminal 2 (red) to 3(red) of the P7 connector and depress the hilow "down" button at the sideguard. If the bed works, the problem is in that limit switch and its wiring. If you still have a hilow problem, go to step 5.

STEP #5. You will now have to isolate the hilow switches in the circuit board cover. If the hilow won't come up, use a jumper wire and jump from pin 1 to 2 on the P5 connector of the printed circuit board. If the bed works, your problem is in the corresponding switch or wiring. If the hilow won't go down, jump from pin 3 to 2 on the P5 connector. If the bed works, your problem is in that corresponding switch or wiring. If you still have a problem, refer to step 6.

STEP #6. Now you need to check the output of the printed circuit board. The circuit board's ultimate purpose is to supply 120VAC to the various motors, on command, from the sideguard switches. DO NOT USE JUMPER WIRES FOR THIS TEST!!! Use a voltmeter set to a scale appropriate to read AC line voltage and the following chart.

CHART
IF THE HEAD WON'T COME UP, probe terminals 3(org) and 5(grey) of the P2 connector on the circuit board, depress the head up switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.
IF THE HEAD WON'T GO DOWN, probe terminals 6(yel) and 5(grey) of the P2 connector, depress the head down switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.
IF THE KNEE WON'T COME UP, probe terminals 9(pink) and 8(wht) of the P2 connector, depress the knee up switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.
IF THE KNEE WON'T GO DOWN, probe terminals 7(blu) and 8(wht) of the P2 connector, depress the knee down switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.
IF THE HILOW WON'T COME UP, probe terminals 4(brn) and 2(tan) of the P2 connector, depress the hilow up switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.
IF THE HILOW WON'T GO DOWN, probe terminals 1(red) and 2(tan) of the P2 connector, depress the hilow down switch at the sideguard and read the output voltage. It should read between 100 and 130 volts.

(continued on the following page)

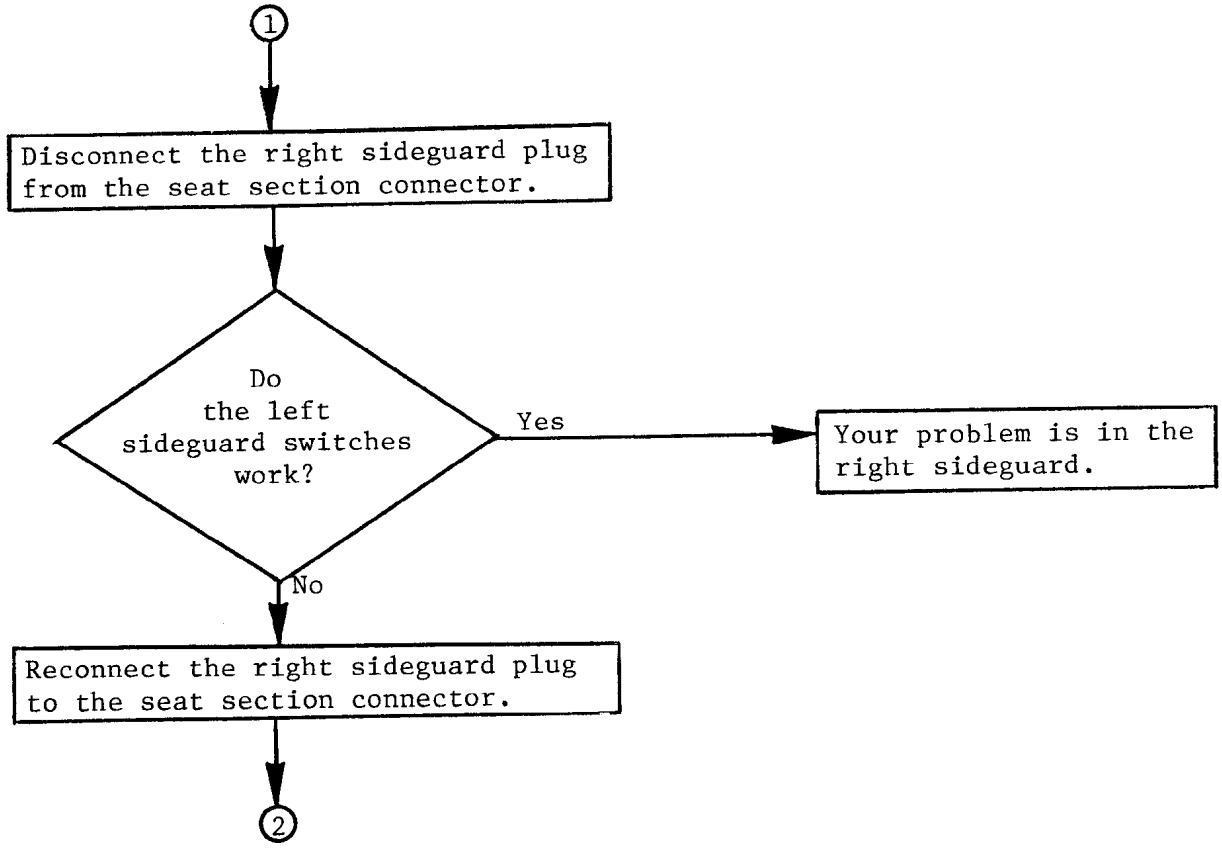
If any of the readings are less than 100 volts, replace the printed circuit board. NOTE: There also exists the possibility that the printed circuit board is putting out constant voltage, making a motor (s) run even though no switches have been depressed. In this case, replace the printed circuit board. If your problem still exists, go on to step 7.

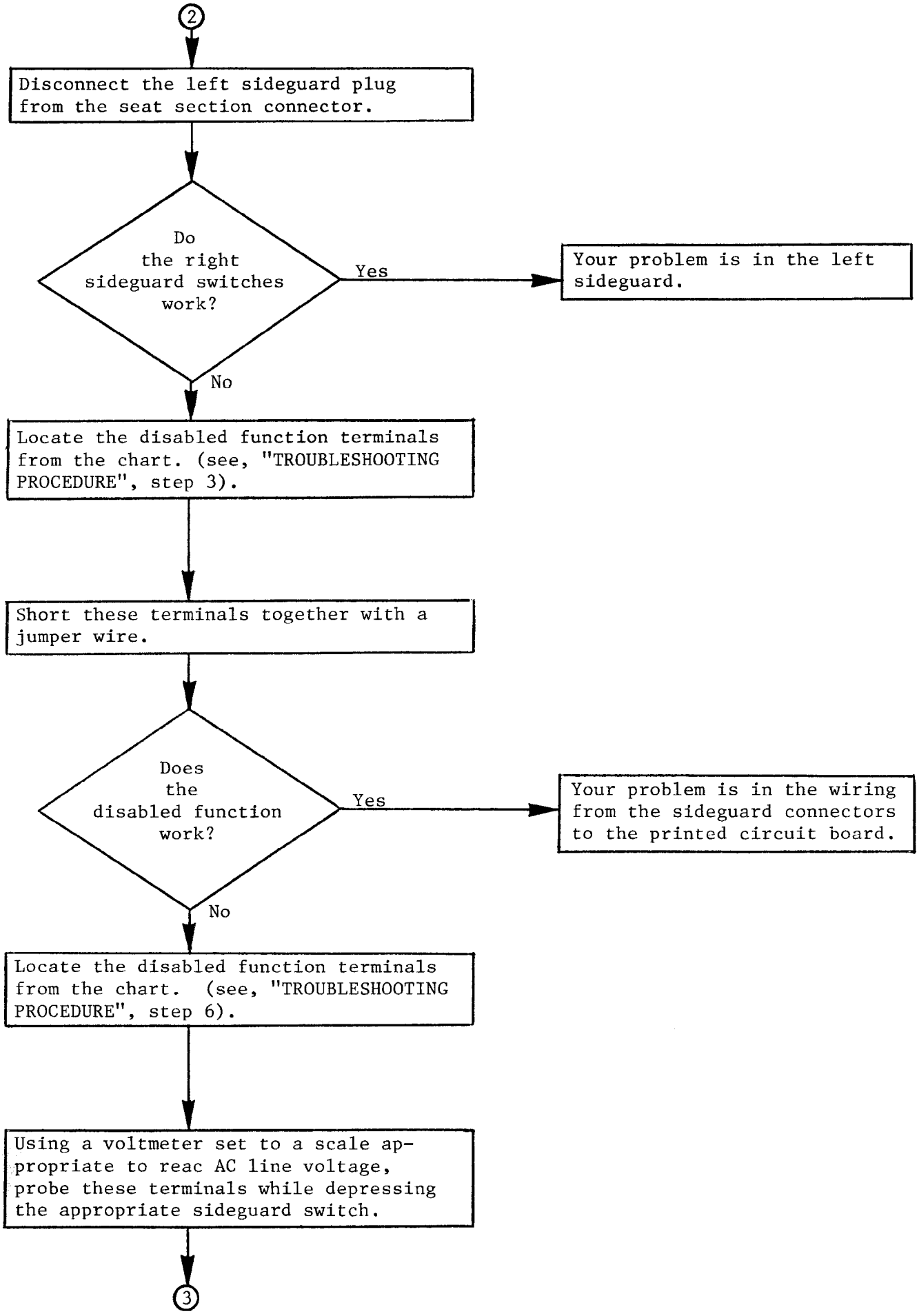
STEP #7. The lockouts for the individual functions must be checked now. With the power off, probe the traces on the circuit board of the lockout you are concerned about. Run a continuity test with an ohm meter. If you get a bad reading, the lockout is bad and the printed circuit board must be replaced. If the reading is okay go on to step 8.

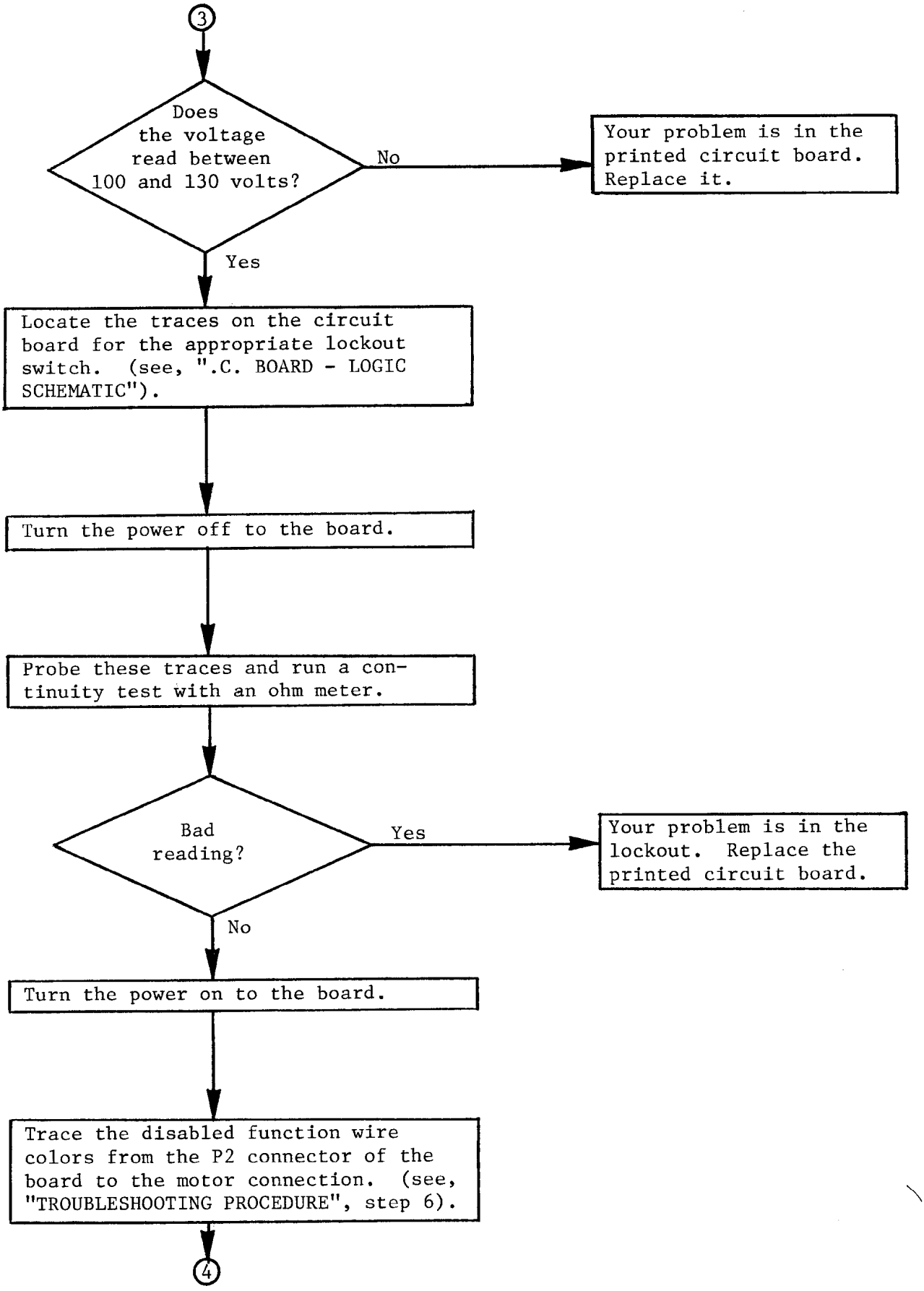
STEP #8. Now you must isolate the motor harnesses. Turn the power back on to the board. Using the chart for step 6 as reference, find the same color wire at the motor connection, but probe the corresponding wires on the motor side of the connections. The reading on the voltmeter should be 100 to 130 volts in all cases when the appropriate sideguard switch is depressed. If it is less than 100 volts, the problem is in one of the wires you are probing. If the readings are okay, the problem is in the motor itself and it should be replaced.

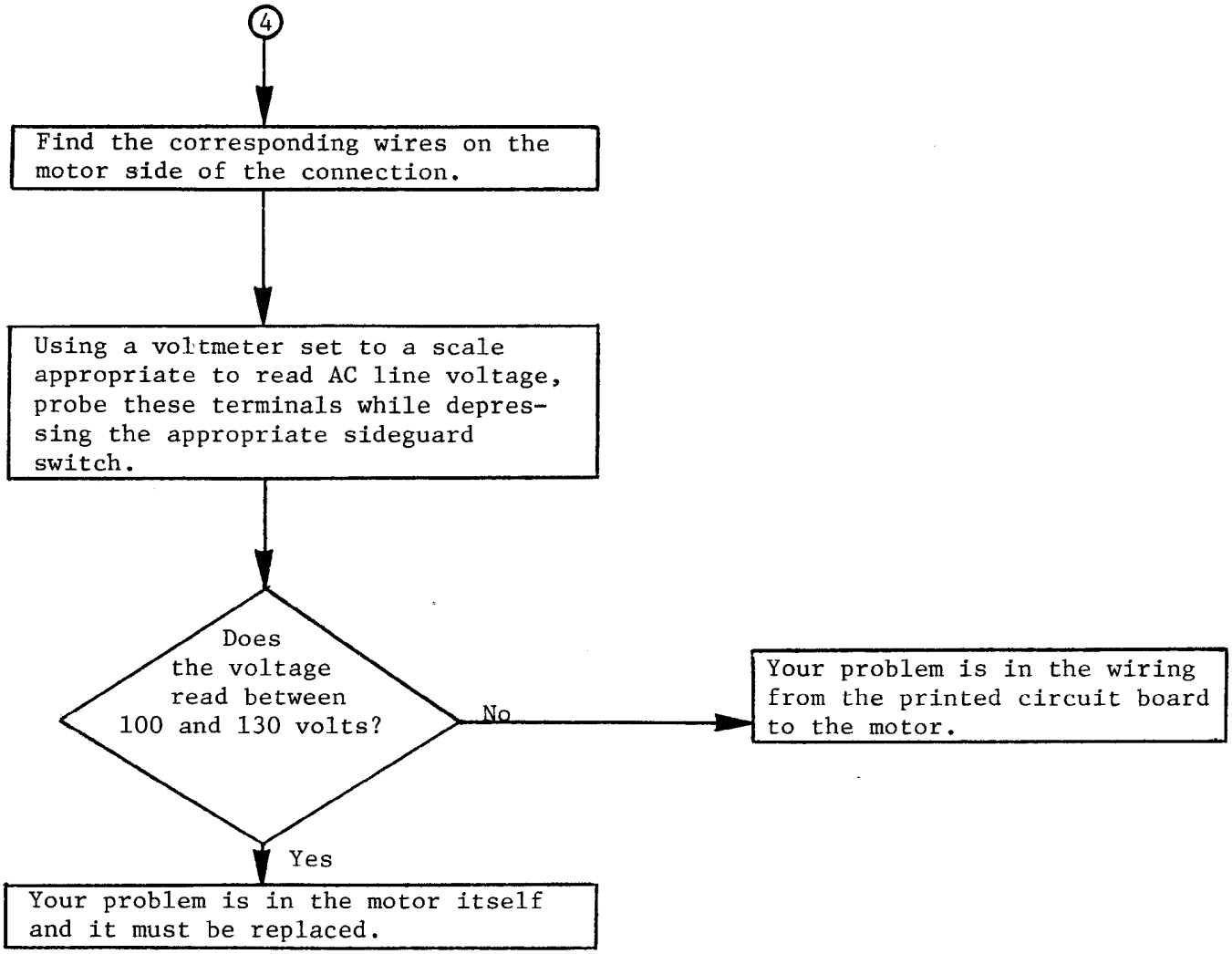
TROUBLESHOOTING PROCEDURE - FLOWCHART FOR HEAD AND KNEE FUNCTIONS

This flowchart is intended to be used in conjunction with the section entitled "TROBULESHOOTING PROCEDURE".


1
Disconnect the right sideguard plug from the seat section connector.
Do the left sideguard switches work?
Yes
Your problem is in the right sideguard.
No
Reconnect the right sideguard plug to the seat section connector.
2

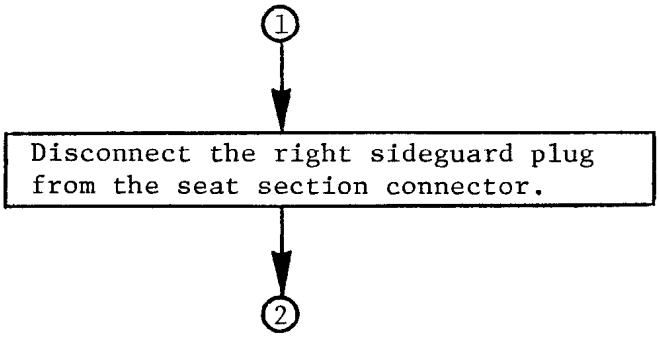

2
Disconnect the left sideguard plug from the seat section connector.
Do the right sideguard switches work?
Yes
Your problem is in the left sideguard.
No
Locate the disabled function terminals from the chart. (see, "TROUBLESHOOTING PROCEDURE", step 3).
Short these terminals together with a jumper wire.
Does the disabled function work?
Yes
Your problem is in the wiring from the sideguard connectors to the printed circuit board.
No
Locate the disabled function terminals from the chart. (see, "TROUBLESHOOTING PROCEDURE", step 6).
Using a voltmeter set to a scale appropriate to reac AC line voltage, probe these terminals while depressing the appropriate sideguard switch.
3

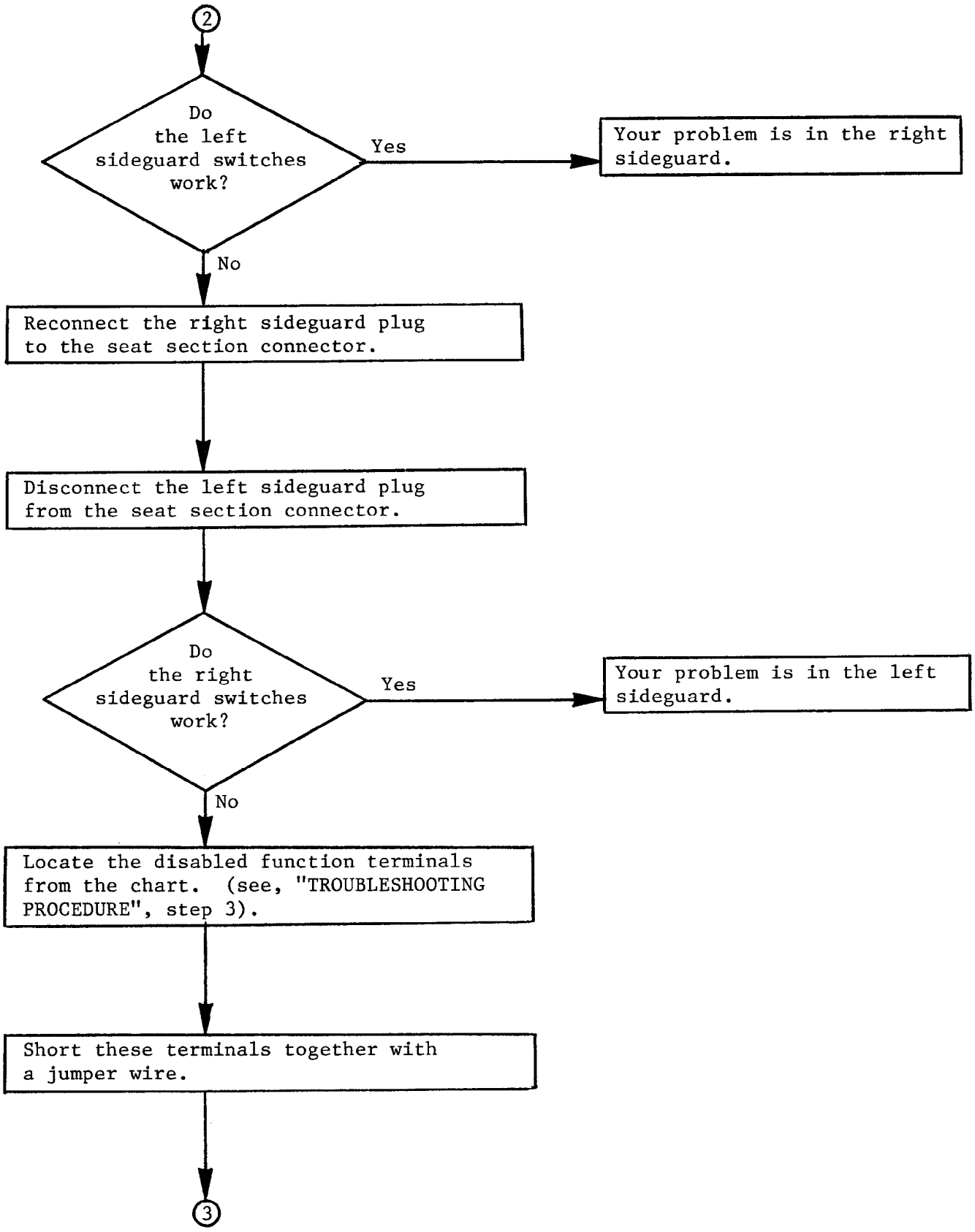

3
Does the voltage read between 100 and 130 volts?
No
Your problem is in the printed circuit board. Replace it.
Yes
Locate the traces on the circuit board for the appropriate lockout switch. (see, ".C. BOARD - LOGIC SCHEMATIC").
Turn the power off to the board.
Probe these traces and run a continuity test with an ohm meter.
Bad reading?
Yes
Your problem is in the lockout. Replace the printed circuit board.
No
Turn the power on to the board.
Trace the disabled function wire colors from the P2 connector of the board to the motor connection. (see, "TROUBLESHOOTING PROCEDURE", step 6).
4

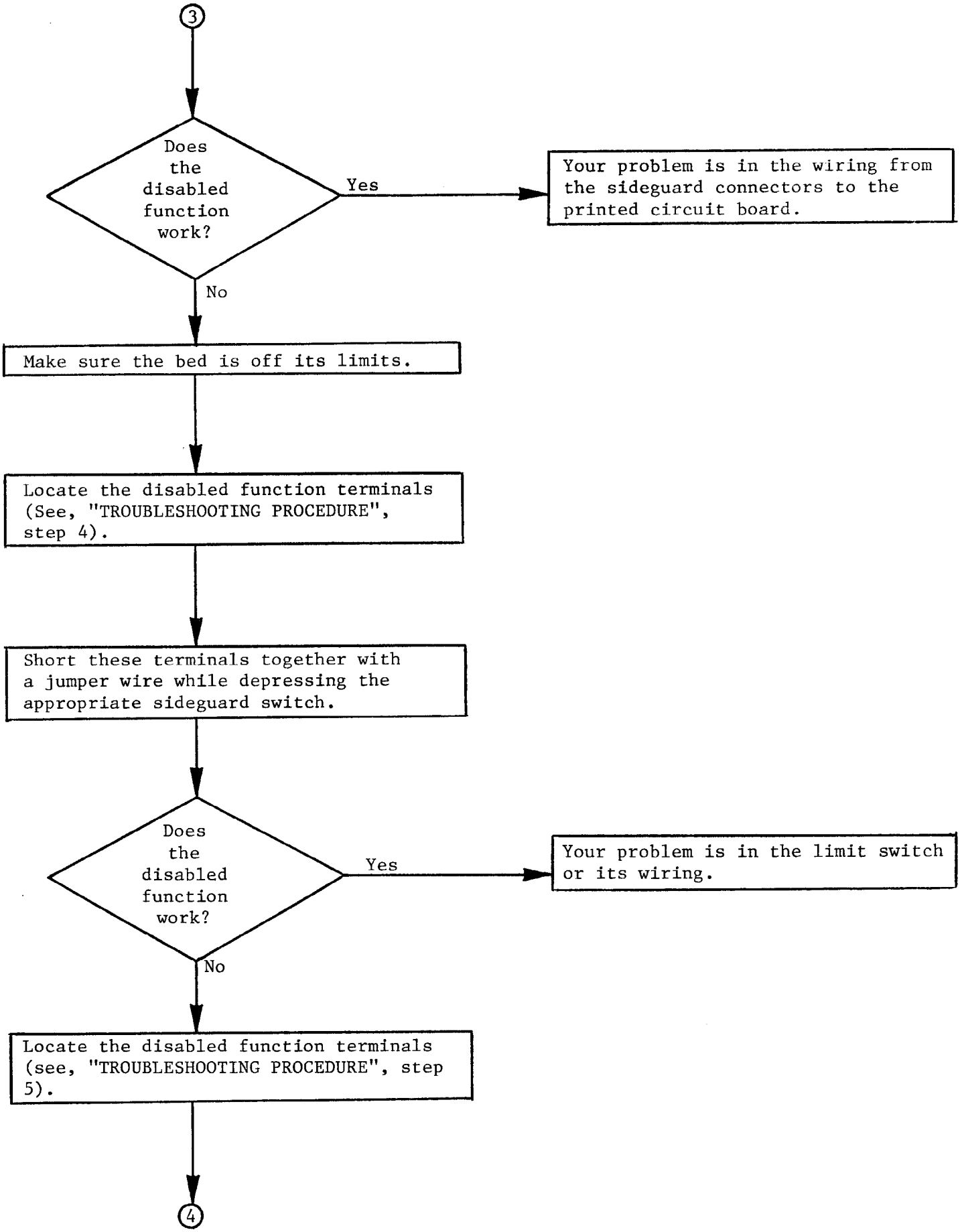

4
Find the corresponding wires on the motor side of the connection.
Using a voltmeter set to a scale appropriate to read AC line voltage, probe these terminals while depressing the appropriate sideguard switch.
Does the voltage read between 100 and 130 volts?
No
Your problem is in the wiring from the printed circuit board to the motor.
Yes
Your problem is in the motor itself and it must be replaced.

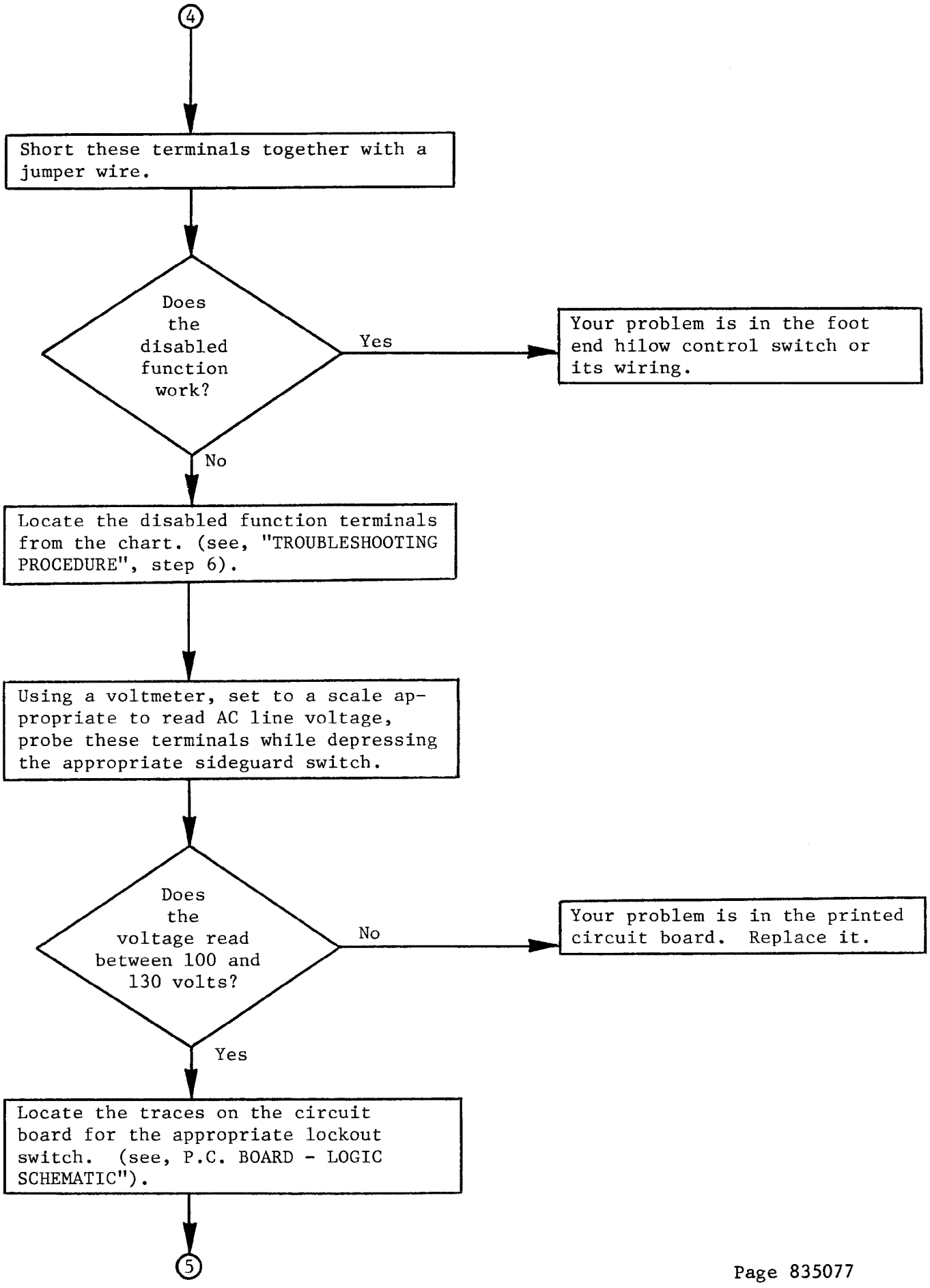
TROUBLESHOOTING PROCEDURE - FLOWCHART FOR HILOW FUNCTIONS

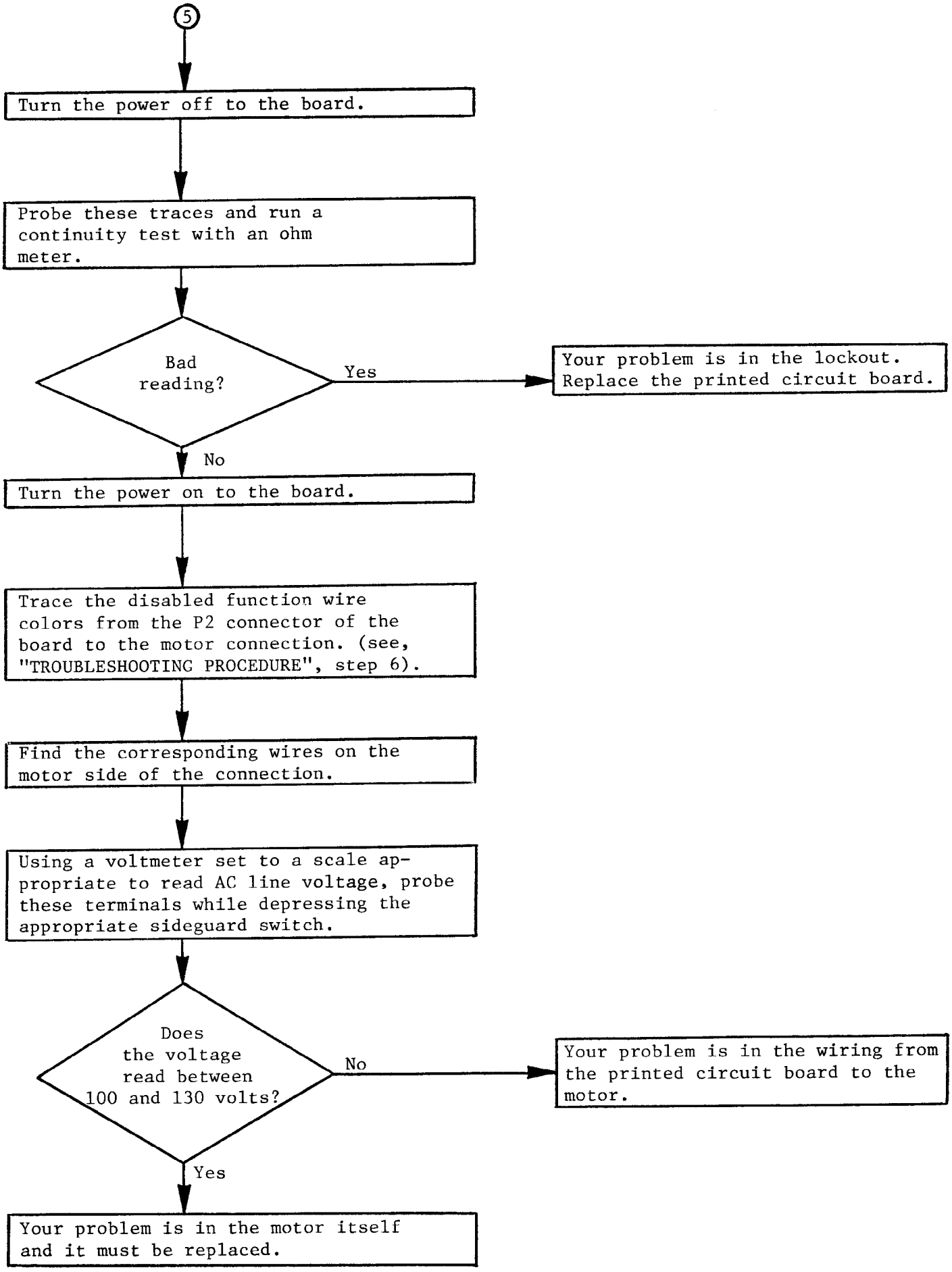
This flowchart is intended to be used in conjunction with the section entitled "TROUBLESHOOTING PROCEDURE".




2
Do the left sideguard switches work?
Yes
Your problem is in the right sideguard.
No
Reconnect the right sideguard plug to the seat section connector.
Disconnect the left sideguard plug from the seat section connector.
Do the right sideguard switches work?
Yes
Your problem is in the left sideguard.
No
Locate the disabled function terminals from the chart. (see, "TROUBLESHOOTING PROCEDURE", step 3).
Short these terminals together with a jumper wire.
3


3
Does the disabled function work?
Yes
Your problem is in the wiring from the sideguard connectors to the printed circuit board.
No
Make sure the bed is off its limits.
Locate the disabled function terminals (See, "TROUBLESHOOTING PROCEDURE", step 4).
Short these terminals together with a jumper wire while depressing the appropriate sideguard switch.
Does the disabled function work?
Yes
Your problem is in the limit switch or its wiring.
No
Locate the disabled function terminals (see, "TROUBLESHOOTING PROCEDURE", step 5).
4


4
Short these terminals together with a jumper wire.
Does the disabled function work?
Yes
Your problem is in the foot end hilow control switch or its wiring.
No
Locate the disabled function terminals from the chart. (see, "TROUBLESHOOTING PROCEDURE", step 6).
Using a voltmeter, set to a scale appropriate to read AC line voltage, probe these terminals while depressing the appropriate sideguard switch.
Does the voltage read between 100 and 130 volts?
No
Your problem is in the printed circuit board. Replace it.
Yes
Locate the traces on the circuit board for the appropriate lockout switch. (see, P.C. BOARD - LOGIC SCHEMATIC").
5


5
Turn the power off to the board.
Probe these traces and run a continuity test with an ohm meter.
Bad reading?
Yes
Your problem is in the lockout. Replace the printed circuit board.
No
Turn the power on to the board.
Trace the disabled function wire colors from the P2 connector of the board to the motor connection. (see, "TROUBLESHOOTING PROCEDURE", step 6).
Find the corresponding wires on the motor side of the connection.
Using a voltmeter set to a scale appropriate to read AC line voltage, probe these terminals while depressing the appropriate sideguard switch.
Does the voltage read between 100 and 130 volts?
No
Your problem is in the wiring from the printed circuit board to the motor.
Yes
Your problem is in the motor itself and it must be replaced.

The 15 MINUTE BED CHECK

The Centra Computerized Bed Test System™ can save you valuable time if you're checking the electrical system on the Centra™ bed. The system's exclusive program provides you with a step by step test covering all controls, switches and wiring that can take less than fifteen minutes to complete. With accessories, the system can be used for the 840, the Century Series Bed or the SideCom® communication system. It's compact. It's easy to handle and easy to use.

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Q-6 up SC 146 D5 = Q_5, Q_4, Q_3, Q_2 -
PRX 710
X 115

Q-7 down "

Q-8 ASSY PRX 8713
SC 147 D5
X 115

U13 Opto coupler Soc MOC (M)
3010
Ø 8638

$U_7 - U_{12}$

Soc (M)
764A
Ø 8601

$U_2 - U_4$ CD 4010 7BE U4
RCA 641